



PUBLISHED EVERY FRIDAY

AT

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"

Telephone No.: WHITEHALL 9233 (12 lines)

Branch Offices:

GLASGOW: 87, UNION STREET

Telephone: Central 4646

NEWCASTLE-ON-TYNE: 4, ROYAL ARCADE, PILGRIM STREET

Telephone: Newcastle-on-Tyne 22239

MANCHESTER: CENTURY HOUSE, ST. PETER'S SQUARE

Telephone: Central 3101

BIRMINGHAM: 81, EDMUND STREET

Telephone: Central 3049

Annual subscription payable in advance and postage free

British Isles and Abroad (2 5s. 0d.)

Single Copies One Shilling

Registered at the General Post Office, London, as a Newspaper

VOL. 91 No. 14

FRIDAY, SEPTEMBER 30, 1949

CONTENTS

	PAGE
Editorial Notes	373
Mr. Bulleid's Contributions to Locomotive Design	375
British Railways Winter Services	376
The Hotels Executive	377
Fifty Years of Notable Locomotive Work	378
An Irish Border Line Case	378
Letters to the Editor	379
The Scrap Heap	381
Overseas Railway Affairs—New Zealand—Western Australia—Burma—India—South Africa—French West Africa—Peru—Yugoslavia—Germany	382
Central Line Extension to Epping	384
Locomotive Valves and Valve Gears—I	385
Opening of the Liverpool Street-Shenfield Electrification	389
Personal	395
The Antofagasta (Chili) & Bolivia Railway Co. Ltd.	399
Brandon & Wiston Accident Report	401
Notes and News	402
Railway Stock Market and Table	404

DIESEL RAILWAY TRACTION

The October issue of this RAILWAY GAZETTE publication, illustrating and describing developments in Diesel Railway Traction, will be ready on October 1, price 2s.

UNIVERSAL DIRECTORY
OF RAILWAY OFFICIALS AND
RAILWAY YEAR BOOK

1949-50 Edition

Particulars and List of Officers of 2,100
Railway Administrations throughout the World

Price 30s.

Post Free 30s. 9d.

THE RAILWAY GAZETTE

33, TOTHILL STREET, WESTMINSTER, S.W.1

A Decisive Stage in the Labour Problem

AS this issue is published, the wage dispute between the Railway Executive and the National Union of Railwaymen is reaching a decisive stage. Yesterday and today a special delegate conference is being held by the union to consider the recent report of the Board of Conciliation which flatly rejected the major claims made by the N.U.R. for increased pay and improved conditions of work. That report, which made certain minor concessions to the men at a cost to the railways in excess of £800,000 a year, has already been accepted by the Railway Executive. That body and the N.U.R. agreed in advance to accept the findings of the Board. It is all the more surprising, therefore, that so long has elapsed between the issue of the report and public notice of its acceptance by the N.U.R. Executive. At the time of going to press, the N.U.R. Executive had not even made known the terms of the resolution which it proposed to place before the delegate conference. If, constitutionally, the N.U.R. Executive has to have its acceptance of the Board's findings endorsed by the delegates, the undertaking given before the hearing of the case must have been of little value. The handling of the negotiations by the N.U.R. has not been on a high level. The failure of its Executive to define its attitude immediately after the issue of the report has left the men without the lead to which they are entitled

* * * * *

Explaining the Financial Position

Since the Conciliation Board's report was published, the Railway Executive and Regional officers have been to considerable pains to bring before the men the facts of the railway financial position. In our last week's issue we reproduced a poster message addressed to all members of the conciliation staff pointing to some of the adverse effects which would flow from unconstitutional action. It drew attention to the fact that any interruption to normal working on the railways would force traders to use other means of transport and would involve the risk of a permanent loss of traffic. Smaller receipts from less traffic could only mean a diminution in the financial pool available for wages, and loss of traffic would mean that fewer staff would be required, and that there would be less opportunity for promotion. The financial position of the railways is already such that a substantially greater loss this year than last is inevitable. A more responsible attitude by trade union leaders would result not only in greater benefit for the men, but would save railway officers from having to perform educational work of this kind.

* * * * *

Restricting Wage Demands

As we suggested in our September 23 issue, there now appears to be developing a tendency to look more favourably on wage demands which might improve the lot of the lowest-paid men. At the meeting between the General Council of the T.U.C., and the Chancellor of the Exchequer to discuss devaluation of the pound, the T.U.C. pursued a cautious line, and the official announcement issued afterwards referred to a recognition of the difficult problems affecting wages and the cost of living that arose as a result of the Government's action. The Chancellor himself, in his House of Commons speech, inferred that any wage increases which took place must apply only to the lowest paid workers. In effect, this cuts right across established trade union policy, which has been that it is essential to maintain existing differentials. At one or two meetings of railwaymen during the past week, notably at Doncaster, a plea has been put forward for the establishment of a £5 minimum wage for all adult railway workers. The shift of emphasis which has occurred in the last week or so from the demand for overall flat-rate increases, applicable to all grades, to an endeavour to secure improvements for the lowest-paid workers, may have considerable significance at the delegate conference.

* * * * *

Costly Railway Renewals

Some interesting figures were given in *The Times* recently on the cost that has been incurred by British Railways on re-equipment. In 1938, £11,000,000 was spent on rolling stock, whereas last year the figure was £27,000,000. This total included £6,000,000 on new locomotives and tenders,

compared with £2,000,000 in 1938; £6,000,000 compared with £5,000,000 on coaching vehicles, including railcars; and £15,000,000 against £4,000,000 on freight vehicles. The figures are not strictly comparable on a numerical output basis, because of dearer labour and materials, and also because a number of former privately-owned wagons have been acquired and the expenditure included in the figure for new freight vehicles. In 1938 the gross cost of laying main line track with bullhead 95 lb. a yard rail was £3,900 a mile; today the same track costs £8,800 a mile. The new flat bottom rail of 113 lb. a yard costs even more, approximately £9,700 a mile, although the subsequent charges for maintenance and renewal are less. The Railway Executive pointed out recently that had the White Paper on Capital Investment set no limit on output and material supplies, about 650 more coaching vehicles could have been built in 1948 in railway workshops alone.

* * * *

Overseas Railway Traffics

As a result of declines in traffics during both weeks of the period ended September 18, Antofagasta (Chili) & Bolivia receipts for the fortnight were lower by £5,650. Traffics for the two weeks were £48,890 and £59,850 respectively, and on the aggregate still are £443,410 higher than for the corresponding period of last year, with a total of £2,456,840 for the current 37 weeks. During the same period, a total advance by G110,596 was made in Paraguay Central traffics, which amounted to G302,180 for the two weeks, and receipts for the current 11 weeks at G1,569,879, compare with G1,126,539 last year. Nitrate Railways traffics continued to advance in the fortnight ended September 15, when there was a £3,250 increase to £19,046, and on the aggregate, receipts are now up by £103,783 at £321,595. South African traffics were higher by £184,283, at £1,520,015 in the week ended August 20, and after a £74,461 increase, at £1,433,548, for the week ended August 27, the total improvement during the current 34 weeks is £3,362,964, at £31,447,104.

* * * *

Central Line Extension to Epping

A five-mile extension of the Central Line of London Transport was brought into use on Sunday last, September 25, when the tube trains began to use the newly-electrified section of the Ongar branch of the Eastern Region, from Loughton to Epping. Automatic colour-light signalling, and power operation for points have been installed, and the stations have been modernised, and provided with standard London Transport equipment. A description of the electrification works on the extension, and a map of the Central Line, which now extends from West Ruislip to Epping, a distance of 3½ miles, appear elsewhere in this issue. Intensive services are run between Epping and the City and the West End during the peak hours, and at other times of the day a 20-min. service is provided by through trains, and a shuttle service connecting with trains from Chigwell Lane (which has been renamed Debden). The connection between Epping and Ongar is provided by a steam shuttle service. To increase the capacity of this single-line section, a crossing loop has been constructed at North Weald.

* * * *

Liverpool Street - Shenfield Electrification

The electrification on the 1,500-volt d.c. overhead system of the Eastern Region suburban services, between Liverpool Street and Shenfield, was inaugurated on Monday last, September 26, when the Minister of Transport, Mr. Alfred Barnes, performed the official opening ceremony. This important scheme to improve transport facilities on a main line already carrying intensive steam services was authorised in 1935, but the suspension of the works during the war years delayed its completion. Extensive civil engineering works and track alterations were necessary preliminaries to the electrification, and four-aspect colour-light signalling has been installed between Liverpool Street and Gidea Park, whence colour-light signals already were in use as far as Chelmsford and Southend. For the first few weeks, only a limited service of electric trains will be run, but additional and accelerated services are to be introduced in November. The

full benefits of the electrification will be secured early next year, when intensive services come into operation. The electrification works, and the new rolling stock, are described and illustrated elsewhere in this issue.

* * * *

Association of American Railroads' Hot-Box Committee

So serious do American railway officers consider the menace of the hot box that the Mechanical Division of the Association of American Railroads has a "Committee on Development of Hot Box Alarm Devices." This body's latest report was considered at the 23rd annual meeting of the Division held at Chicago last June. No new devices were reported as having come to notice during the previous twelve months, but extensive experience had been gained with several types of alarm in service on different railways. One railway administration had gone so far as to standardise a type of alarm on new locomotives and passenger vehicles, and another had specified the inclusion of a different type when ordering a large number of new passenger cars. The committee, however, was not convinced that any relatively expensive electric type of alarm applicable only to passenger stock could be justified economically. It was, therefore, looking for a simple device that could be fitted to both passenger and freight vehicles equipped with either solid or roller bearing axleboxes.

* * * *

U.S. Railways' Experience of Hot-Box Alarms

As the problem of the hot box is specially acute in the tropical countries of the British Commonwealth, some details of the experience gained in America of different types of warning devices may be of interest. The New York Central System has already standardised the Twin-Plex type of alarm for all modern passenger and freight locomotives and has fitted it to 800 new and 2,000 older passenger cars. The Pullman Company has, indeed, applied it to 1,200 solid bearings on N.Y.C. older cars and to all more recent roller-bearing cars supplied to that railway. No "burn-offs" of axles so fitted were reported by the Committee on Development of Hot Box Alarm Devices last year, and 26 hot boxes were correctly revealed by the device in service on the N.Y.C. system. The Southern Pacific Railroad is using the Journ-A-Larm hot box indicator on a smaller scale, but results have prompted its fitting on 179 passenger vehicles now on order. Four types of alarm, including the Twin-Plex, are also being tried on solid-bearing passenger vehicles in regular service on the Pennsylvania Railroad, but results so far appear to be inconclusive.

* * * *

A Blow-Back from the Firebox

An unfortunate accident occurred on an engine on the London Midland Region near Brandon & Wolston Station on April 26, 1949, when there was a blow-back from the firebox. The fireman, enveloped in flames, jumped off and fractured his skull, but the driver, who later also succumbed to his injuries, occasioned by inhaling hot gases, acted with promptitude and great pluck, strongly commended by Brigadier C. A. Langley in his report, summarised in this issue. He stopped the train, went to the signal box for assistance, instructed the guard about the safety of the engine and then went to find the fireman. "His first concern," says the report, "was for the safety of his passengers and train, and his actions were in accordance with the highest traditions of the railway service." There was no evidence of any explosion or defect of any kind in the engine, and the accident is attributed solely to failure to open the blower before closing the regulator.

* * * *

Locomotive Shortage in India

Indian railways were severely criticised in some quarters for the fact that during and after the war they were found to be exceedingly short of modern locomotives, whereas they still had in service an excessive number of time-expired engines which should have been replaced over a period of years. This lack of adequate motive power proved to be a source of some anxiety to the Allies during the South East Asia campaign, and has subsequently been a severe handicap to India's post-war recovery. It is satisfactory to note, therefore, that at least one of the Indian railway administrations is able conclusively to show (1) that it was in no way

responsible for the shortage, and (2) that it had warned the Government of India in no uncertain terms that that shortage was bound to occur if regular replacement were not sanctioned. This repudiation of responsibility was eloquently stressed by Mr. J. A. Bell in his speech as Chairman at the East Indian Railway dinner on September 21, wherein he was able to quote chapter and verse to prove his points. A report of his speech will be found elsewhere in this issue.

Mr. O. V. Bulleid's Contributions to Locomotive Design

THE orthodox school of thought on motive power holds the view that there are no worth-while changes to be made in steam locomotive design beyond minor improvements of detail. Either one should use the steam locomotive in its simple undeveloped form, or, alternatively, one should change over to electric or diesel traction. It is this rather defeatist view which has been quietly but effectively challenged by Mr. Bulleid since he succeeded the late R. E. L. Maunsell as Chief Mechanical Engineer of the Southern Railway in 1937.

The weakest point of the steam locomotive in its present form is its low availability. In comparison with this the question of thermal efficiency is of relatively minor importance. Nobody has yet succeeded in selling any form of locomotive on the grounds of its thermal efficiency alone. The challenge of diesel traction is centred almost entirely on the improved availability which it offers. Mr. Bulleid has set out to meet this challenge by two major departures from orthodox British locomotive practice and a host of smaller improvements in addition, all of which are directed towards the attainment of a higher degree of availability.

The first major departure has been concerned with the boiler. Mr. Bulleid has pursued a logical development, starting with the welded steel firebox and thermic siphons of the "Merchant Navy" class, and culminating with the all-welded boiler of the new "Leader" class engine in which the firebox in its traditional form has disappeared altogether. To carry out this policy of welded steel construction it has been necessary to introduce many changes in boiler-shop practice, notably the use of manipulators for welding operations and the examination of the welds by means of X-ray technique. Parallel with these changes in boiler design, Mr. Bulleid has also pursued the problem of water treatment. Crude water can now be treated, especially when allied with all-steel boilers, in such a way as to obviate corrosion and priming trouble. Loss of working days required for boiler washing-out may as a result be reduced to a very low figure indeed.

The second major departure from orthodox locomotive practice has centred on the cylinders and motion. Inspired, perhaps, by internal-combustion engine practice, Mr. Bulleid has set out to produce an enclosed engine in which the moving parts can be lubricated continuously by flood lubrication and at the same time protected from the dust and grit of the road. Here, again, the first step was taken with the "Merchant Navy" class in which the inside crank and connecting rod together with the three sets of valve motion are totally enclosed in a casing situated between the main frames. Great ingenuity was required to provide for the movement of the frames relative to the crank axle without involving excessive oil leakage, and also to accommodate the three sets of valve gear in the restricted space between the frames. The more recent development of the "Leader" design, employing two totally enclosed three-cylinder sleeve-valve engine units, represents a further step in the direction of internal-combustion engine practice. It is too early to comment in any detail on the many remarkable features of this design, but further information and the results of running experience will be awaited with keen interest by all locomotive engineers.

Not content with these two major departures from traditional practice, Mr. Bulleid has also given close attention to improving the design of many other component parts of the locomotive. His "B.F.B."-type wheel is the result of careful research on stress distribution. The use of "circlips" for locating motion pins, etc., in place of the usual taper pins or split pins and washers, is a welcome innovation. The use of fabricated construction, employing the latest welding techniques, has been most effective in reducing unnecessary

weight. Many other examples of detail improvement could be quoted.

The characteristic feature of all Mr. Bulleid's work is a readiness to strike out with new ideas wherever improvement has appeared possible, whether in availability, in power-weight ratio, or in overall efficiency. To what extent his innovations will be incorporated ultimately into standard British locomotive design, only the future course of events can decide. But, whatever the official locomotive policy of the Railway Executive may be, Mr. Bulleid's work will have given the steam locomotive a new lease of life and will have a profound influence on locomotive designers throughout the world. To have produced two such strikingly successful locomotive classes as the "Merchant Navy" and the "West Country" Pacifics, and to have embarked on the bold experiment of the "Leader" class, is an outstanding achievement in locomotive engineering. The steam locomotive is far from being dead, and as Mr. Bulleid has himself remarked, there is no reason to think that finality has yet been reached.

* * * *

British Transport Commission Traffic Receipts

THE declining tendency in the traffic receipts of the British Transport Commission was continued during the four weeks to September 11. Traffics during that period declined by £665,000 as compared with the corresponding period a year ago. Total receipts were £31,205,000.

British Railways had gross revenue amounting to £26,665,000 during the four weeks, which was £610,000 less than in the similar period of 1948. Passenger revenue was down by £731,000, and there was a decline in merchandise and livestock traffic of £72,000. On the other hand, there was a small increase, £20,000, in revenue from parcels by passenger train, and mineral traffic brought in £51,000 more. Receipts from the movement of coal and coke showed an advance of £122,000.

London Transport receipts were £4,382,000, a decline of £83,000 on the similar period a year earlier. Inland Waterways showed an increase of £28,000 at £158,000. In the following table the receipts are shown for each of the varying sections of the British Transport Commission's traffic businesses for the four weeks to September 11 last, for the similar period of last year, and the aggregate for the 36 weeks of this and last year:

	Four weeks to September 11		Incr. or decr.	Aggregate to September 11		Incr. or decr.
	1949	1948		1949	1948	
British Railways—	£000	£000	£000	£000	£000	£000
Passengers ...	11,035	11,766	— 731	83,188	89,424	— 6,236
Parcels, etc., by passenger train ...	2,335	2,315	+ 20	19,920	20,167	— 247
Merchandise & livestock ...	6,104	6,176	— 72	56,436	57,771	— 1,335
Minerals ...	2,174	2,123	+ 51	20,134	19,416	+ 718
Coal & coke ...	5,017	4,895	+ 122	46,500	44,185	+ 2,315
	26,665	27,275	— 610	226,178	230,963	— 4,785
London Transport—						
Railways ...	1,055	1,099	— 44	9,929	10,072	— 143
Buses & coaches ...	2,487	2,499	— 12	21,831	21,884	— 53
Trolleybuses & trams ...	840	867	— 27	7,575	7,772	— 197
	4,382	4,465	— 83	39,335	39,728	— 393
Inland Waterways—						
Tolls ...	56	62	— 6	514	518	— 4
Freight charges, etc. ...	102	68	+ 34	851	668	+ 183
	158	130	+ 28	1,365	1,186	+ 179
Total ...	31,205	31,870	— 665	266,878	271,877	— 4,999

For the 36 weeks of the year to September 11, British Transport Commission total gross revenue from traffic movement has amounted to £266,878,000, which is £4,999,000 less than for the similar period of last year. British Railways receipts at £226,178,000 are lower by £4,785,000. Passenger traffic has shrunk by £6,236,000, but coal and coke receipts have been £2,315,000 better.

So far over the year, London Transport traffic receipts have declined by £393,000 to £39,335,000. Inland Waterways have shown an improvement of £179,000 at £1,365,000.

British Railways Winter Services

AS it was generally expected that the winter passenger mileage on British Railways would have to come down to the level of 1948-49—actually it is a little below that figure—the number of summer improvements continued in the timetables which operated from September 26 is very gratifying, and the resulting winter service is most satisfactory. Almost every important cross-country train still runs daily, and there are even a few accelerations, principally on the Eastern Region between Kings Cross and Leeds. We must also, in passing, congratulate the Railway Executive on the earlier appearance of the new timetables. Even the London Midland publication, nearly always the last to be on sale, was available by September 16, and we hope that this change for the better will be permanent.

On the Western Region, the 7.10 p.m. from Paddington to Birmingham, instituted on July 4 last, and the balancing 3.55 p.m. up from Snow Hill, are kept on. The 10.10 a.m. from Paddington and 7.50 p.m. from Birmingham disappear, and the through carriage to Stratford-on-Avon is transferred to the 9.10 a.m., though the 2.10 p.m. would probably have been a more useful service for this facility, did its loading permit. The full daily service between Paddington and the West of England still runs, as do, also, the evening through trains between South Wales and Birmingham, 7 p.m. from Cardiff, and 6.15 p.m. from Wolverhampton. The 9.55 a.m. from Paddington and 9.2 a.m. up from Whitland are the only losses among the South Wales expresses from and to London. The service to and from Bristol is practically unaltered, with no fast up train after 4.15 p.m. from Temple Meads, and the three semi-fasts which follow at 5.25, 6.20, and 7.35 p.m. average 3 hr. 5 min. on the 118½-mile journey, so that speeds over the easily-graded Bristol main line are a little below those of the other expresses. As the running of a South Wales train at 9.55 a.m. from Paddington has not removed the need for duplications of the 8.55 a.m., it might be worth considering for the future whether 7.55 would not be a more useful departure time for an additional train, in which case a connection from Swindon might also improve the very weak morning service from London to Gloucester and Cheltenham.

The Southern Region retains the summer accelerations of the 7.30 a.m. from Bournemouth and 7.30 a.m. from Exeter to Waterloo—the latter being faster, intermediately, than any pre-war train—as well as the quickenings of the 9 a.m. and 2.50 p.m. from Waterloo by 8 and 13 min. to Exeter, and of the up "Atlantic Coast Express" by 10 min. into London. Strangely enough, the 10.50 a.m. down is still allowed 103 min. from Waterloo to Salisbury—a war-time schedule, when a stop was being made at Woking—and on the Kent coast section the summer improvements have all been dropped, and there is no quickening of the semi-fast services which run outside business hours. One had hoped that the 10.10 a.m. up from Ramsgate and the 3.20 p.m. down from Victoria—old-established and popular pre-war trains—might have been permanent additions to the timetable, and it is disappointing to find the journey-time of thirteen fast trains, including the residential, from London to Margate still averaging 9 min. more than that of the corresponding trains of pre-war winters. The high standard of Southern Region passenger services elsewhere makes these figures surprising in view of the very great advance in locomotive power.

On the Eastern Region, the timings of East Coast Anglo-Scottish trains are likely to be cut again from November 7, when some of the bridges between Dunbar and Berwick are replaced by permanent structures, but the "Flying Scotsman" schedule now appears as 8 hr. 13 min. down and 8 hr. 16 min. up, 8 hr. 39 min. and 8 hr. 40 min. being allowed in the case of the afternoon trains. The 1 a.m. from Kings Cross is due in Edinburgh at 9.35 instead of 9.45, widening the margin with the 10 a.m. departure to Aberdeen, by 4 min. quickening between London and York and 6 min. between Berwick and Edinburgh; the "Queen of Scots" Pullman is accelerated by 24 min. down and 14 min. up between London and Edinburgh, with the Newcastle and Waverley non-stop run cut to 2 hr. 37 min. down and 2 hr. 46 min. up; and the "Tees-Tyne" Pullman saves 8 min. up and 4 min. down between Newcastle and London. Two trains on this route acquire new titles. The 10 a.m. from Newcastle to Kings Cross and the 12.20

p.m. down become the "Northumbrian"—the up train is 4 min. faster than its pre-war counterpart at 10.35, 10 a.m. being then, of course, the "Silver Jubilee" departure time, and the 12.20 p.m. down, a post-war creation, is 20 min. slower than the 1.20 of 1939. The other new title—the "North Briton"—is given to the 8.48 a.m. Leeds to Glasgow and 4 p.m. return train. This service is now only 19 min. slower from Leeds to Edinburgh than in pre-war days, makes a new stop at Darlington, and has 2 hr. 37 min. instead of 2 hr. 25 min. between Newcastle and Waverley. The return timing is at present 26 min. worse than in 1939 (16 min. worse from November 7), and has the distinction of a 44 min. run from Darlington to York (the first 60 m.p.h. post-war booking on the North Eastern Region), but in view of the over-late arrival in Leeds (10.36 or 10.26) the 16 min. wait at Waverley might be cut down at least to the 10 min. allowed in pre-war days.

The principal Eastern Region changes are in the Kings Cross and Leeds services. Seven down trains are accelerated by 54 min., the 11.30 a.m. and 5.30 p.m. Pullmans reaching Leeds in 3 hr. 42 min. and 3 hr. 48 min., and seven up expresses save 37 min., each of the up Pullmans receiving a 9 min. cut. The 8.15 a.m. up from Leeds is put forward to a 7.20 departure, reaching London at 11.41, with the "West Riding" 7.50 from Leeds following at 11.51, but the down morning service from Kings Cross to the provinces is still rather less satisfactory, as the earliest express departure (that of the "White Rose" at 9.20 a.m., with a 4 min. acceleration to Leeds) is not in Bradford and Leeds till 1.39 and 1.17, and on the Great Central section there are no important changes. Here the principal need seems to be the restoration of a Sunday evening service from Marylebone on the lines of the popular 5.30 p.m. of pre-war days (3.30 is now the latest Sunday departure), and the adoption of Bradford, *via* Huddersfield and Halifax, as the destination of all the expresses, which would afford valuable relief at Kings Cross and avoid the need for Halifax or Bradford portions, *via* Stalybridge and Huddersfield, on the overloaded Manchester services from Euston. Liverpool Street arrangements are at the usual winter level, though here some improvements may be expected when the difficulties attending the Shenfield electrification have been overcome. A new 50-min. train is announced between Southend-on-Sea and Fenchurch Street, calling only at Westcliff and offering first class accommodation. The up train leaves Southend at 9.5 (a restoration, in fact, of the old 9 a.m. of London Tilbury & Southend days, and at a similar schedule) and the down service leaves Fenchurch Street at 4 p.m. The gem of the old Tilbury down service was the 5.5—also a 50-min. train to Southend with a Westcliff stop—but a somewhat lighter train ran down at 4.7 in a similar timing and with an extra stop at Stepney.

The only important alteration in the Anglo-Scottish trains over the West Coast route is in the Glasgow and Lancashire service, where the division of the pre-war 4.30 p.m. from Glasgow into a 3.55 for Liverpool and 4.15 for Manchester is abandoned, in favour of a departure at 1.40 p.m. and another at 4, each a combined train for both destinations. The 1.40 p.m. is a re-instatement of the old 2 p.m., though at slower speed south of Carlisle, and the times taken from Glasgow to Manchester by the three day services at 10.43 a.m., 1.40, and 4 p.m. are now 71,41, and 58 min. over the schedules of the pre-war winter. The down services at 9.30 a.m., 2, and 4.15 p.m. from Manchester show worsenings of 38, 46, and 51 min. The "Royal Scot" group returns to normal winter arrangements, though the London to Glasgow time by the 10 a.m. is advertised 9 min. faster than last winter and the up "Scot" is advertised into Euston at its summer time of 6.20 p.m., and the Glasgow to Birmingham train retains its summer 9.30 a.m. departure, instead of reverting to 10.5. The 4.50 p.m. Euston to Blackpool becomes 5 p.m. and is accelerated 15 min., and a connection from Crewe to Preston (the restoration of a pre-war train) is given at 8.35 p.m. off the 5.15 from Euston, unfortunately missing the 8.41 p.m. arrival at Crewe from the West of England. A stop at Watford is restored on the 10.57 a.m., now 10.50, from Euston, and the 5.45 and 6 p.m. from Euston to Liverpool and Manchester are reversed, leave at 6.5 and 5.55 p.m., and are each accelerated by 5 min. The Midland Division, apart from minor alterations, gives a worsening of 10 min. in the 4.15 p.m., now 4.5, from Manchester Central to St. Pancras, to admit of extra stops at Miller's Dale and Matlock, and the

average time from Manchester to London by the old Midland route goes up to 4 hr. 48 min. It seems unfortunate that the St. Pancras and Manchester service cannot yet be put on a level where it could afford appreciable relief to the heavy Euston and Manchester trains.

A number of existing London Midland trains resume their pre-war titles. The down "Comet," however, is now the 9.45 a.m. from Euston—a 4-hr. train, 4½-hr. on Saturdays—instead of the 11.50 a.m. 3½-hr. service, and we imagine that passengers on the up "Thames-Clyde" (9.20 a.m. Glasgow St. Enoch to St. Pancras) may be a little puzzled by the present schedule of 10 hr. 10 min., with one extra stop, compared with the 8 hr. 50 min. timing of pre-war days.

Apart from slight re-timings, services on the Scottish Region revert to the usual winter level, and the summer novelties, such as the Edinburgh Waverley and Inverness through trains and the Glasgow Queen Street and Oban service via Crieff and Arrochar are all withdrawn, as was only to be expected. The 5.55 a.m. from Aberdeen to Edinburgh becomes 6.5, there being no 9.45 a.m. "Capitals Limited" to connect with at Waverley, and the 6.35 p.m. up "Aberdonian" becomes a 3½-hr. service to Edinburgh. But the 7.19 p.m. arrival at Waverley of the morning service from St. Pancras still narrowly misses the 7.10 and 7.15 p.m. departures to Aberdeen and Perth, and the situation is not improved by the fact that the previous Midland service—10.27 a.m. from Leeds, due in Edinburgh at 4.20 p.m.—similarly misses trains leaving at 4.5 for Perth and 4.15 for Aberdeen.

Elsewhere we notice a few cases of new or restored connections, but the number seems small having regard to the publicity given to improved punctuality (and late running has accounted for most of the broken connections of recent years) and the valuable new services, without extra mileage, which improved connections would now afford. The 12.10 p.m. from Birmingham New Street to Manchester has been put forward to 12 noon and now connects at Crewe with the 10.40 a.m. from Euston to the Carlisle line—a service long given at 12.25 from Birmingham in pre-war days—and improves the journey time from Birmingham to Manchester by 15 min., where some acceleration is badly needed. More important, however, is the alteration to 7.36 p.m. of the 6.50 from Carlisle to Glasgow St. Enoch, which now gives a service out of the 1 p.m. from Euston to Dumfries and Kilmarnock. The 12 noon (now 12.15) from Glasgow St. Enoch to Carlisle and the 6.50 p.m. return train, as well as the 12 noon Edinburgh Waverley to Carlisle returning at 7.5 p.m., commenced to run in the summer of 1947, as a partial restoration of the midday service from St. Pancras to Scotland (withdrawn on February 13, 1947, among the coal-crisis cancellations), and it was obvious from the first that both return workings should have run from Carlisle off what is now the "Midday Scot" from Euston. Last summer's lightly-loaded 5.25 p.m. from Leeds to Carlisle should, of course, form the Carlisle to Glasgow St. Enoch train in future years, thus restoring a through midday service to Scotland by the old Midland route, off the present 11.45 a.m. from St. Pancras, and its "balance," at 12.50 p.m. from Carlisle to Leeds, should run at about 3 p.m., as a continuation of the 12.15 from Glasgow, to connect with the 5.20 p.m. from Leeds to Bristol.

There are still, however, many glaring cases of broken connections, which we hope may receive attention in due course. Among them are the "4.35" p.m. arrival at Carlisle of the 8.55 a.m. (now 8.50) from St. Pancras and the "4.34" departure from Carlisle for Perth, and the "Midday Scot" 4.14 p.m. departure from Crewe with a South Wales express arriving at 4.18. At Crewe, also, the 8.55 a.m. from Perth still misses its old West of England and Birmingham connections, although we are pleased to see its Euston arrival improved from 8 p.m. to 7.35 by cutting down the excessive recovery allowance of 35 min. south of Preston, which was given in summer to find a path for the train from Crewe to London. Coupled with this revision of connections at junctions there might be, we suggest, an overhaul of carriage workings on local and semi-fast trains to provide far more through workings between the Regions through what were once "frontier" stations, thus avoiding needless changing of passengers, cutting out empty carriage workings, and greatly improving the use of rolling stock, the shortage of which is still deplored by the Railway Executive.

Only a few important expresses—among which we notice the 8.10 a.m. and 7.10 p.m. from Paddington to the north, the 3.30 p.m. from Waterloo, and the 3.50 p.m. from Perth to Inverness—still lack restaurant facilities, but attention might well be given in future years to continuing, at least through October, some of the cars run primarily for holiday traffic, such as the Inverness and Achtnashen workings (which commenced last July) and the car on the up "Lakes" express from Windermere to Crewe. One would like also to see a wider use of the buffet or light refreshment car, which is a great saving in tonnage over the 75 and 85-ton sets now being hauled about, and might obviate some of the difficulties met with in providing satisfactory table d'hôte meals under present food conditions. Has not the time also arrived, in view of the greatly extended seat-reservation facilities, to consider legalising reservation from certain intermediate points, the prohibition of which is often a serious hardship to returning holiday-makers?

* * * *

The Hotels Executive

ON July 1, 1948, the Hotels Executive became responsible to the British Transport Commission for managing hotels, refreshment rooms and restaurant cars, which had been controlled by the Railway Executive during the first half of the year. The changeover involved the transfer of 45 hotels, 400 refreshment rooms and some 500 restaurant car services. The Commission's first report speaks about the magnitude of the business, but 10 hotels formerly conducted by the railway companies were closed in 1948 and the Palace Hotel, Aberdeen, which was destroyed by fire in wartime, has not been rebuilt. In 1938 the companies had £9,800,000 invested in hotels, which were managed by Hotels Superintendents along with the catering in refreshment rooms and on restaurant cars. On an average, for the five years 1934 to 1938, receipts from all three sources were £5,767,000 and expenditure was £5,189,000, leaving net receipts of £578,000. To earn this profit, the hotels departments spent £569,000 a year on the maintenance of hotels, refreshment rooms and the fittings and furnishings of restaurant cars.

Different conditions and accounting changes rule out a precise comparison with the 1948 results given in the Commission's report. Gross receipts of £13,599,000, after deducting expenses of £13,144,000, yielded net receipts of £455,000. Maintenance cost £1,147,521, or almost twice the pre-war figure, and it is doubtful whether the money spent last year would cover as much work as the railway companies were in the habit of doing.

Refreshment rooms contributed £436,000 to the 1948 balance and the report contemplates "far-reaching reconstruction, radical modernisation and heavy expenditure" for providing suitable accommodation at stations. A statement in the report that "towards the end of the year there were indications of some curtailment in the spending power of the public on food and drink" and the downward trend of passenger traffic throw doubts on the need for exceptional expenditure on station refreshment rooms at the present time, when essential work is still in arrears and costs are abnormally high.

Hotels suffered from the effects of the Catering Wages Board Order of March, 1948. While the total receipts increased by 7 per cent., expenses rose by 14 per cent. Though the turnover for 1948 exceeded that of 1947, the profit from hotels was only £104,000 at the end of the year. Restaurant cars were worked at a loss of £83,000, after debiting traffic expenses with the cost of hauling the cars and maintaining them as running vehicles. In spite of this deficit, the report says that it is hoped eventually to provide catering services on all long-distance trains. The Railway Executive presumably regards these facilities as necessary, but their supply may increase the Hotels Executive's loss.

The Executive believes that the organisation, which it has set up, will "enable a high degree of economy in administration to be achieved," but this pronouncement is not supported by comparative statistics. In 1948 the cost of administration, together with salaries and wages, represented nearly £3,500,000. The prospect is that the amount will grow as time goes on and there is no certainty that the Hotels Executive will contribute a larger sum to the consolidated revenue of the Commission in future than it did last year.

Fifty Years of Notable Locomotive Work

IT is almost fifty years since Mr. Burton-Alexander published his "Railway Runs in Three Continents"—the first work, we believe, to deal exclusively with timings of express trains—and Mr. Cecil J. Allen's long looked-for volume* has appeared in very different circumstances. Mr. Burton-Alexander's book, which contained few details of journeys in Great Britain, and those rather mediocre performances, came out when the circle of railway enthusiasts was very small and train timing almost an unknown art, and it was received by the press with amused tolerance. Mr. Charles Rous-Marten, the Rev. W. J. Scott, and Mr. Norman Macdonald were almost the only well-known railwayists, and the first-named, judging by the journeys we were privileged to make with him, certainly did not always conform to the standards of accuracy demanded in chapter 21 of the volume now under review; Mr. Allen has very rightly queried on page 161 his 102.3 m.p.h. record with *City of Truro* on Wellington bank. Now, however, observers of locomotive performance are so numerous that, as Mr. Allen himself has remarked elsewhere, there is little chance of any noteworthy runs being overlooked, and the accuracy and reliability of this host of train-timers is such that he has been able to draw on the experiences of a wide circle of correspondents.

Mr. Allen's work goes, of course, far beyond the scope of Mr. Burton-Alexander's early effort, and devotes two chapters to "development" before and after 1925, four to "design," wherein technical details are very clearly and simply explained, one to "building" and three to "service"—under test, at the shed, and on the road. After the "performance" section comes a chapter on train timing methods, and a set of main-line gradient diagrams appear at the end of the book. The volume is very well produced and illustrated, though some of the pictures of trains evoke sad memories when we contrast them with the grimy collections of parti-coloured stock of which too often our expresses are composed today.

Mr. Allen divides his description of performance in Great Britain into six chapters—two each on the L.M.S.R. and L.N.E.R., before and after grouping, one on the G.W.R. and one on the Southern Railway—and chapters on performance in France and Germany, and in the U.S.A., follow. He then deals with the "rivals of steam," electric and diesel-electric traction, giving a wealth of information on practice in Italy and Switzerland. We are sorry, however, to see so little reference to Belgium, as before 1939 the Belgian railways were putting up some fine performances—steam, electric, and diesel—and took a share in the working of the Paris and Brussels services, which are briefly referred to on page 187. The chapter on "France and Germany" is of exceptional value, for (as Mr. Allen admits) our own speeding-up at the beginning of the century, which led to the great railway years of 1903 and 1904, was largely the result of the performances of the De Glehn four-cylinder compound Atlantics on the Northern of France, and their chronicling by Mr. Rous-Marten, just as the high-speed developments in Germany of the early 'thirties caused a long-delayed acceleration in Great Britain and gave us a few really high-speed trains. Part of the credit for this should be given, however, to a Vice-President of the L.M.S.R., who realised that our rail speeds had dropped much too near to the level of road transport, and that his engines were being worked far below their capacity. Even now we have not really learned the lessons of the German time-table revision of 1932 and 1933, and our businessmen are given little opportunity to make long journeys from London into the provinces and back in the day.

The chapters devoted to performance in Great Britain record almost all the famous runs of early days, including the Great Western's "Royal" record to Plymouth in 1903—and we recall with some amusement the Rev. W. J. Scott's explanations that the return journey of the Royal party from Cornwall to Waterloo had all been arranged beforehand, and was in no way the result of the "down" trip!—and the story of the mail and passenger specials with American traffic from Plymouth to London. But although the preliminary and trial trips of the high-speed trains on the L.M.S.R. and L.N.E.R. are fully recorded, we should like to have seen a little more reference to these trains in actual working—their dates, timings, and loads—as, although many of these details are

scattered through the book (we get the date of the introduction of the "Bristolian," for example, from a chance remark after the description of the 1903 "record" to Plymouth) they do not appear anywhere in convenient form, nor does the index—a useful addition to a book of this nature—give any help. The L.N.E.R. "Coronation" and "West Riding"—much harder propositions in actual working than the "Silver Jubilee"—really seem to justify a little more space, and now that the special stock constructed for them has, mistakenly, been scattered over a number of unimportant services and becomes more drab and dingy every day, our recollections of the high-speed trains need refreshing.

An Irish Border Line Case

(From an Irish transport correspondent)

BEFORE it has even made public its proposals for dealing with the public transport problems which lie wholly within its jurisdiction, the Government of the Irish Republic has been confronted with the crisis involving the Great Northern Railway (Ireland). Particulars of this company's situation, as publicised by its General Manager, Mr. G. B. Howden, already have been given in other issues of this journal. Briefly, the traffic receipts have been declining at the rate of about £4,000 a week, whereas labour costs have increased. All the company's investments have been sold or mortgaged this year against staff or stores expenses and no funds are available to meet losses in working which are anticipated with the end of the summer passenger traffic season. Notice has been given this month by circular—although the staffs concerned were advised by their unions not to acknowledge the communication—of variations in employment terms which would enable men to be paid off rapidly if necessary.

Observers in Dublin attached some significance to the virtual coincidence of the G.N.R. crisis announcement with the formal introduction in Dail Eireann of the Transport Bill, 1949, by which the Republican Government intends, according to a Ministerial statement of February last, to nationalise Coras Iompair Eireann and to amalgamate with it Grand Canal Company and one or two minor railway undertakings. Acquisition of the G.N.R. (I.) assets, although recommended by Sir James Milne in his report, had been excluded from consideration, owing to the thorny nature of the related political problems which would have to be solved as between the Republican Government and the Government of Northern Ireland. On a like score, acquisition of that major portion of the G.N.R. lines which lie within the Northern province, had been excluded also from the immediate scope of the Ulster Transport Authority formed last year to amalgamate the other Northern rail and road operators.

The undertaking, being a border-line case, had been left by both Governments to carry on as best it could, despite cumulative and accelerating difficulties to which its Chairman, Lord Glenavy, had called attention publicly in clear terms. These difficulties were in no way due to lack of efficiency, but—as was mainly the case with C.I.E.—to road competition and the effects of outdated statutory controls.

The announcement of impending dismissals on a large scale compelled both Governments to take increased notice of the situation. Reports had to be sought by the two Governments from their chief transport executives—Mr. T. C. Courtney, Chairman of C.I.E., and Major Pope, Chairman of the U.T.A. It was known that Mr. Courtney (and his predecessor, Mr. A. P. Reynolds) had met Major Pope informally on several occasions for discussion of the future of the cross-Border railway. But there had not been any discussions at Ministerial level.

The most serious snag is said to centre on the G.N.R. engine and carriage works which, south of the Border, are the mainstay of the economic life of Dundalk town. It would be difficult at least for the Northern Ireland authorities, in the event of the system being split into two operating divisions, to concede that the Dundalk works should continue to construct and maintain rolling stock for the whole system. On the other hand, the southern section alone could not justify continuance of Dundalk works at its present strength; the C.I.E. works at Inchicore, larger and better equipped, could take on the additional task readily enough.

* Locomotive Practice and Performance in the Twentieth Century. Cecil J. Allen. Cambridge: W. Heffer & Sons Ltd. Price 21s.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Stratford - Fenchurch Street Electrification

12, Fairholme Avenue,
Gidea Park, Essex. September 8

TO THE EDITOR OF THE RAILWAY GAZETTE
SIR.—On page 3 of the London Plan (Railways) Working Party Report the District Line between Barking and Aldgate East is quoted as being one of the most overcrowded in London. Yet, although the Working Party claims a desire to alleviate this overcrowding, it states (on page 28) that the Stratford-Fenchurch Street electric shuttle service should be abandoned (this has since been done) due to congestion between Stepney East station and Gas Factory Junction, a distance of 5,500 ft.

This service is not redundant and would be well used. The sole reason it is not used at present is the long journey time under steam operation (compared with that between Liverpool Street and Stratford) and the fact that almost all trains to stations beyond Ilford run non-stop to Ilford, so travelling via Fenchurch Street means travelling "all stations."

It would be an easy matter to provide a third track for this service as has been done between Stratford and Bow Junction. In fact, a third track at present used for goods working already exists for 2,250 ft. west of Gas Factory Junction with room for a fourth track on the existing viaduct to the north of the existing running lines. For the remainder of the distance there is room to widen the viaduct on the north side to take a third track and at the same time ease the terribly restrictive curve at Stepney East by widening the viaduct on the south side between Limehouse Junction and Stepney East station.

If the northern (new) track be used for the shuttle service, this would enable the Southend and Tilbury services to use the southern tracks and the three southernmost platforms at Fenchurch Street, enabling 40 trains per hour to be reversed at Fenchurch Street when the line is electrified. The northernmost platform would be used by the Stratford-Fenchurch Street service.

Yours faithfully,
RAYMOND A. PASCALL

Passenger Services on the West London Railway

32, Russell Road,
London, W.14. September 10

TO THE EDITOR OF THE RAILWAY GAZETTE
SIR.—In view of considerable impending increases in the day population of certain areas in West Kensington, it is to be hoped that the London Transport Executive has given some thought to the new demands which will be made on local transport in the near future.

New Government office blocks are to be erected as follows: (1) in the angle between Warwick Road and Kensington High Street (4,000 persons); (2) in the cutting formerly containing the London & South Western Railway from Addison Road (Olympia) to Hammersmith (for 1,000 persons); and (3) at Brook Green, near Cadby Hall (for 2,000 persons). Thus by these alone the day population is to be increased by 7,000. The first block is in a fairly advanced state of construction.

This area is very poorly served by Underground, but could be made much better. It is about $\frac{1}{2}$ mile from High Street Kensington, West Kensington, Earls Court, and Shepherds Bush stations. Moreover, the road junction of Kensington Church Street and Kensington High Street (by Barker's) is a notoriously sensitive spot to traffic interruptions, a fact which will make itself felt if buses alone are to cope with increased traffic in the future.

The chief requirement in the reinstatement of what was formerly a most useful set of transport services radiating from Olympia is the rebuilding of the station. This, I suggest, ought to be carried out forthwith; it is a national disgrace that visitors from all over the world to Olympia, who arrive by train, should be unloaded in this pitiful ruin. The remarks of a Swiss visitor who stayed at my house earlier this year, and was able to get a comprehensive view of the station and train services were illuminating, but, in my view, quite justified.

There is one other matter which might receive immediate attention, so as to provide some additional services and thus recapture some of the goodwill which the railway here has lost through nearly ten years partial or complete closure to the public. It ought to be possible to replace the short missing portion of live rail between Olympia and Uxbridge Road stations and to run an "Outer Circle" service so that every other train at present running on the Inner Circle is diverted

at Edgware Road to the route Paddington-Ladbroke Grove-Latimer Road, Kensington (Olympia)-Earls Court-Gloucester Road (and vice versa). This would be a great help locally and would relieve the already shockingly overtaxed buses on route 49 at their peak periods.

An alternative arrangement to the Outer Circle suggestion would be to run trains round the loop from Edgware Road, via Latimer Road, Kensington (Olympia), Earls Court, High Street, and so back to Edgware Road, at the same time providing another train to go over the same route in the opposite direction. Terminal facilities at Edgware Road would be adequate, as the pre-1939 service from there to Olympia used Edgware Road as its terminus.

I suggest that the present is a good time to examine the chances of securing additional traffic, as well as improving the present poor travelling facilities in this area, by considering the possibilities of restoring services to Willesden Junction and by providing a link with the western part of the Central Line in the region of White City. This would involve comparatively little engineering work; and by bringing these services into use the Executive could anticipate the heavy extra traffic which, in the near future, otherwise will be thrown on to overcrowded buses in congested streets in the area.

Yours faithfully,
W. O. SKEAT

Pulsating Smokeboxes

18, Wheatsheaf Close,
Woking. September 21

TO THE EDITOR OF THE RAILWAY GAZETTE
SIR.—With reference to Dr. Tuplin's letter under the above heading, in your issue of August 26, I think it can be said that one reason why the "West Country" class Pacifics so often blow off, especially during brief halts, is because they have open grates, i.e., no dampers. I might also add that the safety valves on these locomotives, due apparently to their high boiler pressure, soon get out of adjustment, and in practice they seldom seem to hold their full 280 lb.; somewhere between 240-260 lb. seems to be the usual blowing off point. As a matter of interest I might point out that the "Merchant Navy" class have got dampers to their grates.

Yours faithfully,
J. B. LATHAM

Railway Fares and Services

Eynesbury, St. Neots. September 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—In referring to my own contributions in his article published in your issue of September 2, Mr. J. H. Laundy admits that I was correct in stating that ordinary fares were reduced in the early 1930's (actually, it seems, in 1932 onwards), and that passenger train receipts immediately began to increase notwithstanding the fact that unemployment was then at its peak. So it is merely pedantry, and quibbling with a word, when he claims that the "standard" fare was never reduced.

The confused state of mind which still exists in the Ministry of Transport Executive and Rates Tribunal is illustrated in Mr. Laundy's reminder that Mr. Alfred Barnes wants to bring all forms of transport under one head, so that he can raise road charges to conceal and offset the losses on the railways. Contrarily, Mr. James Callaghan has stated in Parliament that one form of transport must not be artificially fostered at the expense of another!

Mr. Callaghan's thesis is correct. Each form of transport should be made to stand on its own legs, with charges comparable with those of its competitors abroad. The costs of running a railway are similar in all countries, and there is no sense in our charges being upwards of 100 per cent. higher than abroad.

Obviously, much greater efforts must be made to reduce working expenses and rates, to recover traffics and stop the losses on the railways. If ordinary fares were reduced to 1d. a mile single and 1½d. return, I submit that a very heavy increase in daily passenger train receipts would result, and a substantial reduction made in operating costs by avoiding the running of promiscuous excursions.

But if the railway head-office people are too timid to adopt it as an immediate permanent measure, they might announce it as an experiment to operate as from September 26 to December 31 only—return tickets issued on the latter day being available to January 31.

If successful, the measure can then be made permanent, and season-ticket rates similarly reduced. All the present variety of tickets, with their innumerable restrictions as to days, times and places would be swept clean away, and a return made to simple, straightforward methods of working

on British Railways. There would no longer be any need to invite the public to waste time bothering to visit the stations and offices to have all these complications, complexities and restrictions puzzled out for them.

Finally, neither the railway accountants, Executive, nor the Rates Tribunal—which is supposed to protect the interests of traders and the public by exacting efficient and economical working—seem to realise that in re-introducing promiscuous excursions (which are not run in any other country) they are continuing to violate the recognised economic principle that, when a commodity is in great demand and scarce, prices should be raised. The motorcoach concerns have always observed this principle, by charging low ordinary fares and raising them at weekend and other holiday times, when transport is in great demand and scarce.

Yours faithfully,
E. R. B. ROBERTS

Bradford Train Services

23 Somertrees Avenue,
London, S.E.12. August 29

TO THE EDITOR OF THE RAILWAY GAZETTE
SIR.—Mr. Carpenter's letter, in your issue of August 26, gives a mournfully accurate picture of Bradford's treatment in the matter of train services, but there are some additions to be made to his particulars, if only as a matter of historical record, for the details of pre-war services are very quickly forgotten nowadays.

The Midland Railway opened the Royston Junction and Thornhill line in July, 1909. It was part of the earlier scheme to put Bradford on a main route to the north, and was originally given three trains in each direction (they did not, of course, pass through Normanton) increased to five in July, 1914. Through carriages ran from Bristol and St. Pancras to Huddersfield, Halifax, and Bradford, and there were usually conditional stops on the Spen Valley line, so that the time on journey from Bradford to Sheffield was about 70 to 75 min.

After the first world-war, two services in each direction were reinstated in May, 1920, and the number rose to three in July, 1921, five in October, 1923, and a maximum of six in March, 1925. Two interesting experiments were made in the hope of attracting London and Bradford traffic to this route. The first was the running of a restaurant-car train at 1.50 p.m. from St. Pancras to Bradford Exchange in July, 1910, which, though it took 4 hr. 16 min. to Bradford, caused the Great Northern to reply, on July 11, 1910, with a 2.15 p.m. from Kings Cross, due at Bradford at 5.55, and the second was the inauguration of "The Yorkshireman" on March 2, 1925. This was a 44 hr. service between St. Pancras and Bradford Exchange at 4.55 p.m. down and 9.10 a.m. up, which originally ran non-stop between Sheffield and Bradford in 59 min. Although it never carried much Bradford and London traffic, it ran with very little alteration until the timetable revision of September 27, 1937, when it left London at 5.10, running for a time non-stop to Sheffield, and was due in Bradford at 9.11; on the up journey, it was routed via Nottingham, but reached St. Pancras at 1.21.

So far as Marylebone services are concerned, there can be little doubt that Bradford, *via* Huddersfield and Halifax, is the proper objective of the old "Great Central" expresses, which were never really necessary as London and Manchester trains. We can only hope that, when the Manchester and Sheffield electrification compels some timetable revision, this view may commend itself to the Railway Executive. The spectacle of Euston catering, in these days, for West Riding and Bradford traffic on its already heavy Manchester services is rather ridiculous, even to those of us who remember the Euston and Bradford sleeping car which ran on the midnight train from Euston in 1905 and 1906.

But while the Bradford and London services, thanks to the Eastern Region, are reasonably good, Bradford's communication to north and east is undeniably bad. The Harrogate service has come down from eight trains (eleven on Saturdays) to two, and when we recall that the Leeds and Scarborough residential train started from Bradford before the first world war, and brought the Bradford and Scarborough times down to 1 hr. 43 min., Mr. Carpenter's plea for Bradford and Scarborough through workings, at no extra mileage cost, seems very reasonable.

The London Midland region still gives Bradford a fairly good residential train to Morecambe, taking 1 hr. 40 min. down and 1 hr. 35 min. up compared with 94 and 90 min. in 1912—there was, however, a non-stop in 85 min., with tea and breakfast car, in 1900, and a 70 min. schedule was under consideration in 1931—but communication with the north is bad. When the Midland-Scottish services were revised in 1901, one train—at 10.30 a.m. from St. Pancras—ran to Carlisle *via*

Bradford, where it was due at 3.8 to 3.13 p.m., and now that time on journey has become less important on the St. Pancras to Glasgow and Edinburgh trains, the routing of a day and a night service *via* Bradford might well be considered. All that has been done in the period since 1901 was the slipping of Bradford carriages at Saltaire by two up expresses from Scotland in 1909, giving a Bradford arrival only a minute or two later than that at Leeds, and, in July, 1927, the routing *via* Bradford of an early morning service from Leeds to Glasgow, which was discontinued in the 1928-29 winter, and disappeared after the summer of 1931. The old Midland Railway was probably too much concerned with its Scottish traffic from the "Lancashire & Yorkshire" area, picked up at Hellifield, to concern itself with through portions from Bradford, though passengers were allowed to travel *via* Leeds—leaving Bradford, for instance, at 12.50 p.m. to join the 9.30 a.m. from London at Leeds at 1.28—and even in 1908, when the so-called non-stop at 11.30 a.m. from St. Pancras to Carlisle stopped on the curve at Shipley to change engines, nothing was done to make it available for passengers from Bradford.

In 1909, the Lancashire & Yorkshire Railway commenced to run the 9.40 a.m. from Bradford to Manchester Victoria in 60 min., calling at Halifax (to attach a portion from Leeds) and slipping at Rochdale. In the 1909-1910 winter the average journey-time of eight fast services was 74 min.; it is now 88 min. It should be remembered that this is the only practicable route between Bradford and Manchester and Liverpool, and that, although everyone must admit the very difficult nature of the old Lancashire & Yorkshire road and the need to serve intermediate towns, engine power has increased enormously in the last forty years, and neither gradients nor speed restrictions need present the obstacles they once did.

Yours faithfully,
R. E. CHARLEWOOD

Railway Passenger Fares

13, Outwood Drive, Head Green,
Cheshire. September 21

TO THE EDITOR OF THE RAILWAY GAZETTE
SIR.—The long awaited report of the first year's workings of British Railways has made its appearance, and on page 58 it states: "Compared with 1938, nevertheless the British Railways were still carrying about one-ninth more passenger traffic, measured in passenger miles, an appreciable gain compared with pre-war," and "the average length of journey showed little change (over 1947). Yet on page 87 it states: "While there was evidence of some general constriction of money available for travel and holidays . . ." How then was it that the average length of journey showed so little change?

Further, I think harm has been done by the reference to "one-ninth more passenger traffic," which must have misled many people. To quote *The Manchester Guardian*, "the railways were still carrying about one-ninth more traffic than in 1938," and the *News Chronicle*, "Density of Passengers—the railways in 1948 carried one-ninth more passengers than in 1938." In fact, as compared with 1938, the number of passengers in 1948 was less by 236,000,000, a decrease of one-sixth. And how many people understand passenger miles? The real position is not even hinted at—various excuses are made for the fall in passenger traffic, but no mention of "full employment," petrol rationing, etc., and this year, in spite of probably the finest summer of the century, it is falling still further.

In his recent article Mr. Laundy argues that cheap tickets (which I have urged for so long) have caused an additional loss of one and a half millions in the first twenty-eight weeks of 1949! With all due respect to Mr. Laundy his argument is quite mistaken and I maintain that beyond any question whatsoever, if cheap tickets had not been introduced the fall in traffic and receipts would have been even greater.

When standard fares were put up to 33½ per cent. over pre-war, I tried through *The Times* to point out that the real increase was much more than that. Further, that unless a vigorous cheap ticket policy as well as better train services were provided, heavy losses would ensue. *The Times*, however, was not interested, nor was it when I raised the same point again when standard fares were increased by 55 per cent., and though my contention has been emphatically denied in Parliament it is beyond any question a fact which can be proved and is one of the main factors responsible for the tremendous fall in passenger traffic. The real increases have been and still are in many thousands of cases greatly in excess of the increases officially claimed again and again, being up to 150 per cent. on pre-war. In the report, paragraph 172, it refers to "the level of fares (55 per cent. over pre-war)." The real "level" is much higher.

Yours faithfully,
ERIC DYCKHOFF

The Scrap Heap

TRANSPORT STOPPED BY HAY SHORTAGE

Because of a shortage of hay for feed, horse trams at Douglas, Isle of Man, which run along the promenades, will be withdrawn on Saturday instead of carrying on, as is usual, until the end of September.—*From "The Times."*

* * * A PROUD RECORD?

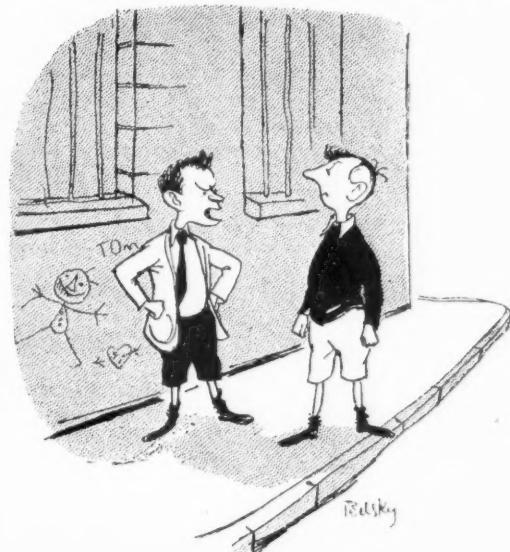
Mr. Barrie, of the Railway Executive, writes to you that 90 per cent. of the 625,902 trains run by British Railways in a recent four-week period were less than five minutes late. This means that 62,590 trains were more than five minutes late. Is this a record to be proud of?—*From a letter to the "Evening Standard."*

* * *

FOOD FOR THOUGHT
Revealing that its annual consumption of fuel is 5 million tons of coal, 290 million units of electricity and 1,970 million cu. ft. of gas, the London Midland Region of British Railways is to run a prize competition among its staff, for slogans to keep fuel economy well to the fore during the coming winter months. In the appeal to the staff it is stated that a one per cent. saving would mean 53,000 tons of coal, which, on the export market, could buy enough beef to put a 1 lb. portion on 795,000 British dinner plates.

* * * PLESSEY STATION GARDENS

Two years ago, before Porter J. H. Harmer produced a scheme for tidying up the station gardens at Plessey, British Railways, North Eastern Region, the plots had been derelict. Mr. Harmer, however, bought seed at his own expense and subsequently won third prize in the station gardens competition. The interest of Plessey Station Signalman G. Allen was then added to Mr. Harmer's vigour and soon there were 2,500 individual plants, with 65 yards of sweet peas. This year, Plessey has won the premier award as top station in the North Eastern Region station gardens competition, and the judges have awarded it a special class prize.



"My father can go slower than yours"

(Reproduced by permission of the Proprietors of "Punch")

"THAT RIDICULOUS HERALDIC LION"

A railway enthusiast in the North of England writes: "A year and a half of our nationalised railways in these parts convinces me that the ridiculous heraldic lion painted on the tenders should have his tongue in his cheek instead of sticking out like it does—presumably in a thirst for better train services—unless he is putting it out at the general public, for which purpose it is, of course, an eminently suitable device."

* * *

100 YEARS AGO

From THE RAILWAY TIMES, Sept. 29, 1849

THE FRENCH REPUBLIC AND THE RAILWAYS IN FRANCE.

THE general situation of the Railway Companies in France, resulting from the political and financial difficulties which they have encountered during the last eighteen months, is calculated to excite the attention and alarm of the numerous parties interested therein, and the solicitude of the persons charged with the directions of these undertakings.

The necessity imposed upon the Government to relieve the Railway Companies, representing an enormous capital, from the difficult position they are placed in, is perfectly evident, and the law presented to the Chamber for the concession, on liberal terms, of the Lyons line to a Company, is, we trust, a proof that the French Government partake of our opinion on this subject.

* * *

L.M.R. ORCHESTRAL SOCIETY CONCERTS

So many have asked the L.M.R. (London) Orchestral Society to play their favourite pieces that the conductor, Mr. John Grindley, has decided to put on an extra concert on October 21 at Euston to give "request" items. Joyce Newton, contralto, and Percival Garratt, piano will be the soloists, and the proceeds of the concert will be given to the Derby Railway Servants' Orphanage. A further concert will be held on December 16 when the society will have a group of young artists, including Pauline Elmott, violin, and Mavis Elmott, piano, who have already won high praise at the Royal Academy of Music, and boys from St. Mary of the Angels School who will give songs and carols.

* * *

TRAIN SPOTTERS

Ever since the early days of the railway, small boys have been fascinated by locomotives. . . . At any big station one can see coveys or hordes, or whatever the right collective noun for small boys may be, watching spellbound the trains come in and out, and recording the names and numbers of the engines.

It would be hard to imagine a more innocent juvenile hobby. So it comes rather as a shock to hear that the London Midland Region of British Railways is seeking the help of the local education bodies to restrict, if not to repress, the gentle sport. The flocks of en-

gine-gazing urchins cause obstruction—they jeopardise life and limb, notably their own—they trespass and trample—and so on.

The indictment is a grave one. . . . An institution ought to be indulgent to its admirers, even when they embarrass it by their attentions, particularly an institution which is running at a loss. Train-spotting is a tribute to the enduring magic of railways. Cannot B.R. somehow capitalise on it?—*From "The News Chronicle."*

* * *

What a cry would be among the go-slowers if the accountants, too, went slow and put short money in the wage envelopes!—*From "The Recorder."*

* * *

"DUNROBIN" GOES SOUTH

It is to be hoped that the "go-slow" problems are solved before an old Scottish locomotive goes back into action again. The engine, *Dunrobin*, formerly owned by the Duke of Sutherland, and which was sold earlier this year to a private purchaser, is to travel south.

It has been presented by the new owner to the Hythe-Dymchurch Railway in Kent, to be placed in a private museum at New Romney. Distinguished passengers have travelled on the *Dunrobin* footplate, and they left their autographs in the cab. Among them were Edward VII, George V, and the Duke of Windsor when he was Prince of Wales. King Alfonso of Spain was also a passenger before the railway was nationalised.

British Railways wanted to scrap the engine and two carriages, which are also to go to the museum. The Railway Executive is to be approached for permission to run the engine south on their permanent way. It should be a picturesque farewell.

The present plan is to install the engine on short lines at New Romney, where it can be run up and down for demonstration. Built in 1895—according to its present owner—it takes the name *Dunrobin* from the Duke of Sutherland's castle at Golspie. The last projected private enterprise journey is planned to take place in March next year.—*From "The Scotsman."*

* * *

AN ENGINE'S REVERIE

It's twenty-one years since the day
When from the works I came
Shining bright in coat of green,
With a number and a name.

A running-shed became my home—
No luxury for me;
A feed of water and of coal
For breakfast, dinner, tea.

I was assigned to local trains
("To run me in" they said),
But I was very tired at night
When I was put to bed.

And when to haul a crack express
Became my daily task,
I felt I'd reached ambition's height,
There was no more to ask.

I always did exert myself
To live up to my name,
And if I were some minutes late
My chimney hung with shame.

And so, I'm twenty-one today!
Yet, though I've worked so hard,
The postman hasn't brought to me
One single birthday card.

R. M.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Train Hostesses

The Railways Department has decided to employ hostesses on long-distance trains to look after invalids, elderly persons, and mothers with children. It will be some time before the service is introduced as the trains will have to be fitted with the necessary equipment to enable the proper care to be given to persons in the charge of the hostesses.

WESTERN AUSTRALIA

Effects of the Coal Strike

The disastrous coal strike throughout Australia in July and August necessitated emergency measures to maintain railway services. On June 16 the Coal Miners' Federation of New South Wales decided to call a nation-wide strike, and on June 27 the mines closed down. The Western Australian coal miners at Collie were called out with those in Eastern Australia, but, though the general strike lasted for seven weeks, the Western Australian miners returned to work on July 18 after three weeks of idleness.

Because of earlier shortages in coal output, the strike found the railways with only meagre stocks of coal on hand, but an immediate curtailment of train services and the use of oil-burning locomotives to the maximum extent, enabled peak and essential train services to be maintained. Electricity supplies were cut off entirely from transport and domestic use.

Gasworks, which depend on imported coal, found it necessary to restrict supplies to limited periods for the morning and evening meals. An immediate result was that the kitchen arrangements at the Perth railway refreshment rooms were upset, and as an emergency arrangement to provide a hot midday meal, a dining car was stationed on a dead end at Perth Station, and just off the platform. The car stove was fired with wood, and a three-course luncheon was supplied to the public daily, until full gas supplies were restored. This emergency arrangement provided continuous employment for dining room and kitchen staffs and waitresses who would otherwise have temporarily become surplus.

BURMA

Removal of C.M.E's Office

The office of the Chief Mechanical Engineer which functioned at the General Offices, Rangoon, since February 2, 1949, was moved to the new office building at Insein on August 15.

Train Service Restorations

With the reoccupation of Letpadan by the Government forces the train service on the Tharrawaw-Letpadan section has been restored at the instance of the military authorities. The Rangoon-Hmawbi passenger service was extended to Wanet-chaung from August 22. Armoured specials ran as usual in Ywama-Hmawbi, Dabein to the bridge head near the Tongyi and Pegu-Tawa sections. The shuttle service between Thanbyuzayat and Karokpi was resumed with effect from August 4. The train service from Mandalay to Kyaukse was extended to Kume Road from August 16.

All the suburban locals have been restored and effective checks are being main-

tained by the special squads and section travelling ticket examiners to prevent ticketless travel. During the period 90 per cent. of the trains were running to right time. Nine hundred tons of rice were moved by rail from Daiku and Paung-dawthi to Pegu in August.

New Rolling Stock

Two new ST engines were put into service after assembly. A considerable quantity of carriage component parts arrived from India, but due to disrupted communications could not be sent to Myitnge. To avoid delay in the building of these coaches, a proposal has been made to erect as many body shells as possible at the carriage and wagon shed at Rangoon and send them on their own wheels to Myitnge for paneling and interior fittings as soon as through running to Mandalay is restored. Investigations are being made as to the feasibility of this.

INDIA

South Indian Electrification

The 80-mile section of the South Indian Railway between Shoranur and Cochin will be electrified with the completion of the present hydro-electric project of the Cochin State Government.

SOUTH AFRICA

Traffic Features

In spite of the increase in the number of motor vehicles on the roads, railway passenger traffic set a new record last year with 254,454,741 passenger journeys. This is an increase of 10,759,755 over the previous year and 140,751,282 more than in 1939. Although the increase was reflected largely in third class journeys, first class journeys, which it might have been expected would be most affected by private motor transport, showed a slight increase over the first post-war year. For some years, there has been a steady falling-off in second class passenger traffic, and this was continued in the last financial year when 56,590,607 second class journeys were made as against 56,881,579 in the previous year.

Voortrekker Monument Traffic

In view of the large number of visitors expected to attend the unveiling of the Voortrekker Monument at Pretoria on December 16 next, the railway administration proposes to augment existing services to Pretoria or operate special trains for the occasion.

New Saloons

Of the first order for 25 main-line second class saloons now arriving in the Union, 17 have been placed in service on the Durban-Johannesburg and Cape Town-Johannesburg routes, where their improved comfort and modern fittings are meeting with general approval.

Weekly Earnings

When weekly earnings reached the total of £1,550,193 for the week ended July 2, another record was set up by the railways. The week was significant for the general high level of revenue. Passenger traffic produced £305,727; goods £953,670; coal £172,509; and harbours £122,536. In the ensuing weeks, revenue remained high, and in the week ended July 23, goods traffic for the first time yielded more than £1,000,000 in one week. The total was

£1,003,502 excluding coal and livestock. The previous record was £993,361. Earnings for the week ended July 23 amounted to £1,542,794 and came close to the record.

Tank Wagons

In 1939, only 47,725,000 gal. of paraffin and petrol were brought from Lourenço Marques to the Rand and Pretoria. By 1946, the total had grown to 84,769,000 gal., and in 1948 the amount was 116,924,000 gal. In the first five months of the present year, 51,694,000 gal. had been transported. The administration now has 218 tank-wagons in service, six more having been placed in service during July. The construction programme calls for the production of a further 162 wagons which are being built in the Pietermaritzburg railway workshops and it is hoped to place them in service at the rate of ten a month.

FRENCH WEST AFRICA

Railway Development Schemes

The three-year scheme of economic development for the French colonial territories (July, 1949-July, 1952) envisages a capital expenditure of some fr. 125,000,000,000 in which the approximate shares have been fixed as follows: roads, fr. 45,000,000,000; railways, fr. 34,000,000,000; ports, fr. 22,000,000,000; hydro-power plants and distribution lines, fr. 12,000,000,000.

The expenditure on railways is to cover also motive power and rolling stock. Within the three-year scheme about 100 locomotives are to be ordered. Approximately half of the number will be diesel locomotives with electric transmission, stated to be particularly adapted to the conditions in the territories concerned. In addition, about 30 railcars, 1,300 goods wagons, and 200 coaches are to be ordered.

Cameroons Extensions

Another important project envisages the building of a railway between Duala, the principal port of the French Cameroons, and Lake Chad (Fort Lamy). This railway would extend over about 750 miles including the 99 miles of the existing line between Duala and Nkongsamba along the Nigerian frontier. In this territory, too, the metre-gauge has been adopted. This is an alternative scheme to that which proposed to reach Lake Chad from Oubangui (on the Oubangui river which separates French Equatorial Africa from Belgian Congo), and which was outlined in *The Railway Gazette* for April 15 last. Also in the Cameroons, the extension of the existing metre-gauge line from Duala to Yaoundé (191 route-miles) to a point on the Sanaga river, about 50 miles to the north of Yaoundé has been planned.

Extension of Ivory Coast Line

One major railway scheme envisages the extension of the Abidjan—Bobo-Dioulasso line in the Ivory Coast north east as far as Ouagadougou, capital of the Mossi Territory, the north-easternmost region of the Ivory Coast. The line from Abidjan to Bobo-Dioulasso is 497 route-miles long (including also the extension of a few miles connecting Abidjan, the capital of the colony, with Port Bouet, its harbour), and the proposed extension would add another 217 route-miles. The railway is metre-gauge, and so far the only line of the colony, a territory of some 189,000 square miles.

The scheme is not entirely new as it was approved in 1939 (it was then known as the Mossi railway scheme, alternatively as "Chemin de fer de la Haute Volta") but

the war prevented it from being taken in hand. To increase the capacity of the Abidjan—Bobo-Dioulasso line ten articulated locomotives, built by the Raismes locomotive works, were placed in service in that year. Although they used wood fuel they were capable of speeds of up to 50 m.p.h.

In 1939, it was estimated that the building of the Bobo-Dioulasso—Ouagadougou extension would take five years. The new line would be of particular importance for the export of groundnuts—a minimum of 100,000 tonnes annually in excess of the present totals. The Mossi territory is the most densely populated region in all French Africa. It is therefore believed that the railway would contribute to the solution of problems of labour shortage in other parts of French Africa, in addition to facilitating military recruiting.

PERU

The Matarani-La Joya Railway

The ocean terminus of the Southern Railways since 1871 has been the open roadstead of Mollendo, but in 1941 a new port was constructed at Matarani, 8½ miles north of Mollendo, by a New York firm for the Peruvian Government, and in 1945 construction of a railway link was begun by the Government.

The line is 38½ miles long and runs from La Joya, on the line to Mollendo, to Matarani. Rails have been laid for a distance of 18½ miles from La Joya and it is expected that the roadbed will be completed over the whole distance by the end of the year.

The old line of the Southern Railways below La Joya will be abandoned except for a section near the coast running inland for 30 km. to the Tambo Valley. A branch from the new line will run to Mollendo from a point some 10 miles above Matarani.

The ruling gradient between La Joya and Matarani will be 1 in 29 compensated. The total cost in 1945 was put at approximately \$20,000,000, but final costs when completed in 1950 will considerably exceed this figure.

JUGOSLAVIA

Electrification

According to a recent official report from Belgrade the building of the Vinodol hydro-electric power station, which is designed to supply the power for the Rijeka-Zagreb main line, is making good progress. The station is in the Vinodol valley at the foothills of the Kapela mountain range which extends roughly from Rijeka (formerly Fiume) along the eastern coast before it merges with the Velebit mountain range further south.

The tunnel, 16,072 ft. long, which will supply the water from the barrage lake to the power station, was completed recently. The first generator group is to be placed in service in 1951. The conversion of this line was also mentioned in *The Railway Gazette* for November 12, 1948.

The Rijeka-Karlovac section of the main line to Zagreb, completed in 1875, is 109½ miles long and is one of the most difficult standard-gauge main lines in Yugoslavia because of its severe gradients, numerous

sharp curves, and many tunnels. From Rijeka, at an altitude of about 13 ft., it rises to 2,400 ft. at Fuzine, 27½ miles from Rijeka. Between Fuzine and Delnice, 10½ miles further east, it attains its summit of 2,742 ft. in the Sljeme tunnel.

GERMANY

German Federal Railways

As foreshadowed in *The Railway Gazette* for September 9, the name of "Deutsche Bundesbahnen" (German Federal Railways) has been adopted for the former Reichsbahn in Western Germany. The new appellation has been in force since September 7, and was introduced by a decree bearing the signature of Dr. Frohne, Director for the Communications Administration in the Bi-Zone. For the time being the new name is in force in the territory of the Bi-Zone only. For the French Zone, the change of name is to be decreed by the zonal authorities as from a date yet to be fixed. New designations for the railway officials and members of the railway personnel in the Bi-Zone are to be made public by a special decree.

Sufficient accommodation has been secured at Bonn, the Federal capital, to enable both the German Federal Ministry of Traffic and the general management of the Federal Railways to be housed there, and railway circles are of opinion that the administrative and technical services of the Federal Railways will be able to function by October along uniform lines in the whole of Western Germany.

Publications Received

Liverpool Street-Shenfield Electrification. By George Dow. London: The Railway Executive (Eastern Region). 8½ in. x 6 in. 16 pp. Fully illustrated. The electrification of the London suburban services of the Eastern Region, from Liverpool Street to Shenfield, on September 26, inaugurated a new era on a main line carrying some of the heaviest passenger traffic on British Railways. This occasion has been marked by the publication of this excellent brochure, which describes the growth of residential traffic in the eastern outskirts of London from small beginnings, more than a century ago. Salient points in this development are the opening of Liverpool Street Station, in 1874, and successive stages in the quadrupling to Shenfield, between the late 1880s and 1934. Electrification was first proposed some 40 years ago, but was deferred, on the grounds of expense. The present scheme was authorised in 1936, but its completion was delayed by the war. Mr. Dow has described the extensive civil engineering works associated with the electrification, and the installation of the electrical equipment and colour-light signalling, without serious interruption of the traffic.

L'Electrification des Chemins de fer en Europe Occidentale (Railway Electrification in Western Europe). A special number of *Rail et Route*, dated July, 1949. Paris. 17e: 39, Boulevard Berthier. 12 in. x 9½ in. 64 pp. Illustrated. Paper covers. Price fr. 130.—There was need for a publication of this kind if only as a guide to the numerous electrification projects now under way in Western Europe, but in fact the book goes further than this by reviewing the development of electric traction in the countries concerned

and the events leading to the adoption of their present systems. Several chapters are contributed by leading traction engineers of the various countries, and in some instances the reasons for choosing a particular voltage and form of current are gone into in some detail. The Belgian chapter, for example, puts forward several factors in favour of 3,000 V. d.c. for that country in spite of the fact that her French and Dutch neighbours are using 1,500 V. The electrified railway systems described are those of France, Switzerland, Italy, Belgium, Holland, Great Britain, and Spain.

Most space is given naturally enough to the French electric system, with separate sections on power generation and distribution, methods of supplying current to the traction vehicles, locomotive types, and multiple-unit or railcar stock. The descriptions of conductor rail and overhead line construction, with diagrams and photographic illustrations, form a valuable summary of a subject normally dealt with in comparable detail only in much more ambitious text books. An article by Mr. D. W. Wells gives leading particulars of all British electrified lines and their equipment, including an account of the Southern Region electric locomotives.

The theme of this special number is the growing interest of electrification for railways even in countries with good coal resources, now that improved combustion techniques enable low grade fuels and industrial by-products to be used in power stations. The resultant release of more high quality fuel for world markets is an attractive consideration at the present time, and counterbalances the classic idea that electrified main lines are mainly the concern of countries with large hydraulic power resources. With this in mind, the space is fairly divided between rolling stock and the fixed installations for gene-

rating and distributing the power and feeding it to the track or overhead line.

The book is an important aid to the study of what has been achieved already in the electrification of Western European railways, and to the possibilities of the schemes which are now engaging so much attention.

The Fundamentals of Gas Turbine Technology.

By W. R. Thomson. London: Power Jets (Research & Development) Limited. 25, Green Street, W.1. 10 in. x 7½ in. 148 pp. Price 25s. (26s. post free).—This is a disappointing book. One might expect that a work under this title would include discussions of mechanical design, metallurgical problems, fuels and combustion, heat exchangers, and the design of compressor and turbine blading. The author, however, has confined himself to the basic ideas of thermodynamics and some simple fluid mechanics relevant to gas turbines, which is precisely the one aspect which has already received adequate treatment elsewhere in numerous papers and articles. There is one chapter dealing with flow through axial-compressor and turbine blading, but this is by no means comprehensive, and is based on an article by Weske which has been published previously in the *Journal of Aeronautical Sciences*. Even after making due allowance for the title, the book is open to criticism in its presentation of fundamental thermodynamics; for instance, the author introduces the concept of entropy without any reference to reversibility. It is, perhaps, too early to expect a comprehensive work on the gas turbine, comparable to Stodola's book on the steam turbine, but there is room for a reliable publication of an interim nature on gas turbine technology, and it cannot fairly be said that the work under review answers this need.

Central Line Extension to Epping

Completion of works authorised under 1935 New Works Programme

ON Sunday last, September 25, the Central Line Tube trains of London Transport were extended over the newly-electrified Eastern Region tracks from Loughton to Epping, adding to the system five more miles, and three more stations Chigwell Lane (renamed Debden), Theydon Bois, and Epping. This is the eighth extension of the Central Line since the war, and the last to be carried out under the existing authority for works outstanding from the 1935 New Works Programme. The Eastern Region steam trains have been discontinued between Loughton and Epping, and now work only between Ongar and Epping, where passengers transfer to Central Line trains.

The Eastern Region tracks have been

rail jumper cables, a new departure has been made by vulcanising the ends of the cables to the rail terminals. Another innovation, to eliminate the use of concrete troughing to the ground gear, is the employment of multi-core rubber-covered cables, with each core separately screened, for carrying current to train stops and point mechanisms. The cable has a special ribbing on the outer cover to prevent damage. Power for the extension comes from a new sub-station at Epping, to which current at 22,000 v. is fed from the London Transport generating station at Greenwich.

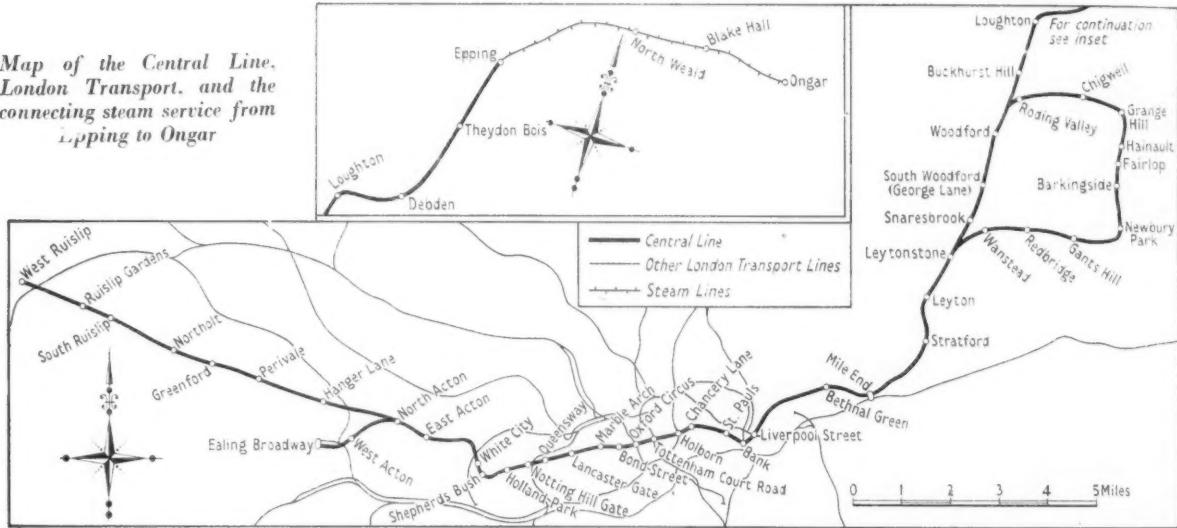
Platforms at all the stations have been reconstructed, and a new forecourt is being built at Epping. Improvements at

Reversing facilities have been provided north of Debden Station by two electrified sidings between the running lines.

As the introduction of electric services has necessitated the separation of freight from passenger working, goods yard sidings have had to be set back. At Debden, the goods yard has been enlarged, an extra siding provided, and sufficient land acquired to permit of future extension; and at Theydon Bois, minor track alterations have been made, a new siding provided, and the coal stacking area enlarged.

In general, the civil engineering side of the works has been carried out by Eastern Region, and the equipment for electric operation by London Transport. Footbridges have been constructed to replace footpath crossings with right of way over former steam tracks. To enable the steam shuttle service over the single line between Epping and Ongar to be augmented and speeded up, the Eastern Region has resignalised this section, and

Map of the Central Line, London Transport, and the connecting steam service from Epping to Ongar



re-equipped throughout with London Transport standard automatic colour-light signalling, and points have been converted to power operation. A new signal box with a 35-lever frame has been built at Debden, and another, with a 47-lever frame, at Epping. Track circuiting and colour-light signalling also have been installed on the section of track approaching Epping from Ongar, so that all movements at Epping, whether steam or electric, are controlled from the new cabin. Conductor rails, mostly laid before the war, are welded into 3-mile lengths, and tracks have been relaid and re-ballasted. Point heaters and current rail de-icing baths are installed as standard equipment.

In the installation of the conductor-

Debden, Theydon Bois, and Epping include the provision of new ticket offices and frontages, the installation of electric lighting, and the erection of standard London Transport signs and station names. Chigwell Lane Station has been renamed Debden, to be more in keeping with the district served, and to avoid confusion with Chigwell Station on the Hainault loop line.

At Epping, the electric service terminates at the down platform, and the steam trains on the up side. A footbridge is used for passenger interchange. An electrified siding has been provided on the north side as an emergency stabling, or additional reversing facility. This has necessitated the widening of the cutting, and the construction of an embankment.

constructed a passing loop and a second platform at North Weald, the first station east of Epping.

From Epping, through trains leave for the City and West End every 12 to 15 min., in peak hours, and every 40 min. in slack hours. The latter service is augmented by a 40-min. two-car shuttle service, operating as far as Loughton, to give a combined service interval of 20 min. From Debden, which serves the new Debden housing estate, additional trains provide service interval of 6 min. in peak hours, and 10-12 min. at other times. The journey from Epping takes 43 min. to the Bank, and 52 to Oxford Circus, which represents a slight saving in time compared with the former steam and electric service.

imply any increase in the total ordinary dividend to be paid for 1949-50.

NEW TYPE MOTORCOACH.—A demonstration run was made on September 23 of a single-deck motorcoach with seating accommodation for 46 to 50 passengers, as against the normal capacity of 34. It is claimed that the new-type vehicle will give economies in both road space and running costs. The coachwork, which is patented, can be constructed under licence by any coachbuilder on any suitable

chassis, or the engine, gear box, and transmission can be built into the body, thus producing a chassisless model. Known as the Crellin Duplex pullman coach, it was designed by Mr. George C. Crellin, Director, Lines Trailer Co. Ltd., Scunthorpe. The Guy Arab prototype is only 11 ft. 6 in. high and has 6 ft. headroom in the upper seats and over 9 ft. headroom in the lower seats; production models now being built will be 10 ft. 6 in. high. Weight of a Crellin Duplex coach on a standard chassis is 6 tons 14 cwt.

ASSOCIATED BRITISH ENGINEERING LIMITED.—Consequent on the resumption of the payment of interim dividends by the Brush Electrical Engineering Co. Ltd., Associated British Engineering Limited has decided to start the practice of itself paying an interim dividend. An interim dividend of 6 per cent. for the year 1949-50 will therefore be paid on November 1 to all ordinary stockholders registered on October 14. The directors point out that payment of an interim dividend represents a mere change of method and does not

Locomotive Valves and Valve Gears—1

The development of flat and piston valves, expansive working, lead and lap movement, and valve gear mechanisms

By Geo. W. McArd, A.M.I.Mech.E.

THE changes in design of steam admission valves for locomotive cylinders, as well as the gear controlling them, have been so marked during the present century as to justify a review of the progress made. Consideration of the trend in design may also be profitable for the future development of this section of the engine.

Development of valves has been considerable during the period referred to and

After the introduction of superheating, it was found that the piston valve gave many advantages over the flat valve, and it usually was chosen as the most logical successor.

Figs. 1 and 2 show two designs of balanced slide-valve, the Richardson and the Adams respectively. In the first-named, a large section of the valve is relieved of pressure by fitting spring-controlled flat strips; special care must be

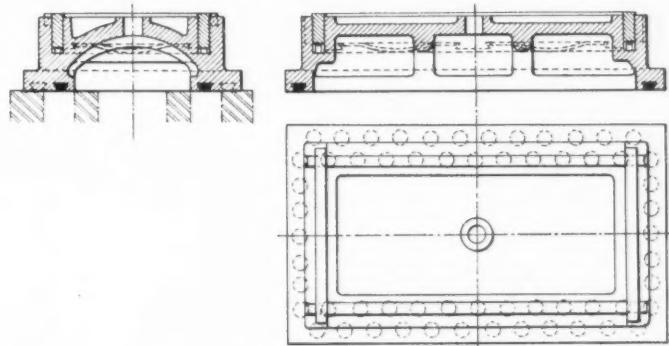


Fig. 1—Richardson's balanced slide valve

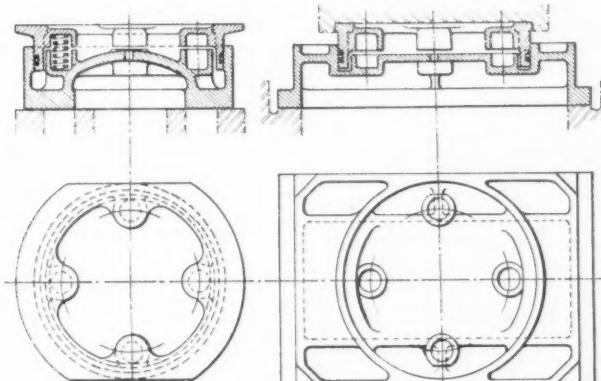


Fig. 2—Adams' balanced slide valve

piston valves today occupy the supreme position formerly held unchallenged by the flat unbalanced-valve. In those days, the inside-cylinder engine was almost universally used in this country, and with the steamchest between the cylinders the vertical unbalanced-valve was practically the only type available. When the outside cylinder was introduced, valve chests were situated either within the frames (for use with the double-eccentric type valve gear), or above the cylinders, but whichever position was chosen, an opportunity was afforded for using a balanced type of valve. Probably the most important factors which helped in the change-over from the old type were the larger cylinders fitted, together with the higher boiler-pressures, both of which caused a big increase in the demands made on the valve-operating gear until some relief, such as that afforded by the balanced valve, was forthcoming.

taken at the corner joints, to avoid any possibility of leakage. The Adams valve is somewhat easier to produce, but the circular balance gives a smaller balanced area than the Richardson unit, which is used most frequently. The percentage of area balanced, taking two valves at random, is 64 for the Richardson and 59 for the Adams, both valves being selected from modern first class stock.

Flat valves have been made of gunmetal and cast iron, probably in equal numbers, but many locomotive engineers contend that a cast-iron valve of selected material will give appreciably longer service, besides costing less initially. Some South American users have claimed that valves taken from engines after 40 years' service, and known to be the original parts fitted, were found to be in perfect condition.

However, piston valves now have displaced the flat valve almost entirely,

especially for superheated engines, the higher temperatures making it vastly more difficult to maintain a truly flat surface free from distortion. Piston valves score in other directions also, some of their special points being as follows: the bigger port-areas available (invaluable for large cylinders); balance is almost complete; better lubrication is possible; live steam may be isolated from packings and glands; shorter steam passages are possible.

Opinions differ as to the ratio of piston-valve dia. to the cylinder bore, though the writer has noted many good examples of locomotive design in which the piston valve is not less than one half the piston dia., that is, a 10-in. valve for a 20-in. cylinder, and one factor that should influence the adoption of such a ratio as a minimum value is the knowledge that the steam and exhaust ports and passages are enhanced thereby.

Many variations in design of piston valve are in service today, and Fig. 3 illustrates a valve fitted by Robert Stephenson & Hawthornes Limited to some locomotives for the L.N.E.R. Other examples are shown by Fig. 4, a unit largely used on the late North British Railway, Fig. 5, which shows a pressure-release valve designed by Mr. George Hughes for the Lancashire & Yorkshire Railway, and Fig. 6, a typical American valve with

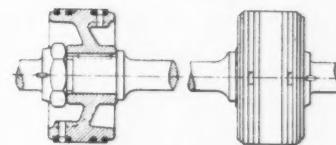


Fig. 3—Piston valve, late London & North Eastern Railway

trunk to facilitate the exhaust steam release. An objection to this type is sometimes raised because the trunk is in direct contact with live and exhaust steam, but the efficient and rapid discharge of the exhaust plus the reduced back-pressure, far outweigh the disadvantages stated.

Originally, slide valves were provided

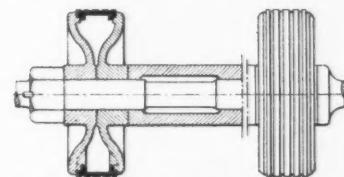


Fig. 4—Piston valve, old North British Railway

with their inner and outer edges level with those of the steam port. This, however, proved to be uneconomical as cut-off did not occur until the end of the stroke, and no advantage was taken of the expansive property of the steam. To obtain an earlier degree of cut-off involved the provision of lap—strictly speaking, negative steam lap—one eccentric only being used at that time. To effect this, the eccentric was rotated through an angular distance on the axle, relative to the main driving crank, such that this distance, measured parallel to the horizontal centre line, equalled the amount of lap provided on each valve edge. When it was found necessary, and possible, to reverse the locomotive, a second eccentric was added, and after passing through a crude stage in which "gabs" or hooks were used to

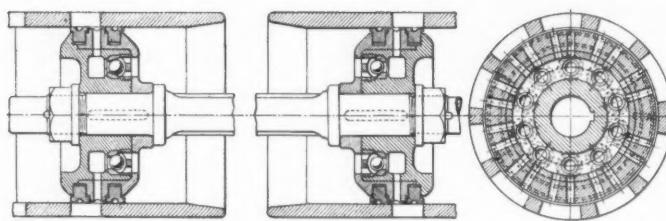


Fig. 5—Hughes' pressure relief type of piston valve

engage the valve spindle pin (see Fig. 7), the device known as the reversing link was evolved. This reversing link not only afforded the desired means of reversing by connecting the valve to the appropriate eccentric, but also gave the means of varying the travel of the valve and therefore the consumption of steam. This change meant a tremendous gain to the future operation of rail transport, as by this addition a smaller steam generator would suffice to develop the same engine power as had formerly been used, or the same boiler would feed a much larger engine unit.

As progress was made, it was found that though a late cut-off was quite satis-

lever—which is so proportioned to give a movement at the point where the connection is made to the valve spindle, equal to twice the lap and the lead, when the bottom centre of the lever passes through a distance equal to the piston stroke. In Joy's gear, the same movement is obtained by a suitable curvature of the die-block and its path in the reversible guide.

Zeuner Diagram

The Zeuner diagrams as constructed for determining the lap (steam and exhaust) necessary for obtaining the required valve events—cut-off, release and compression—

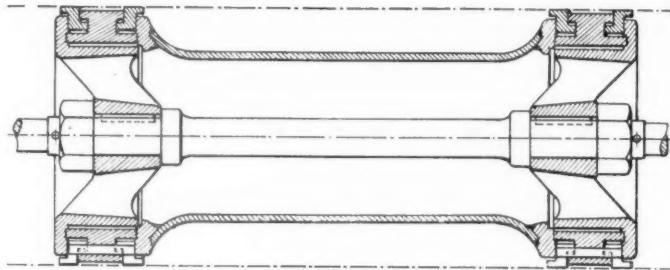


Fig. 6—Trunk type of piston valve

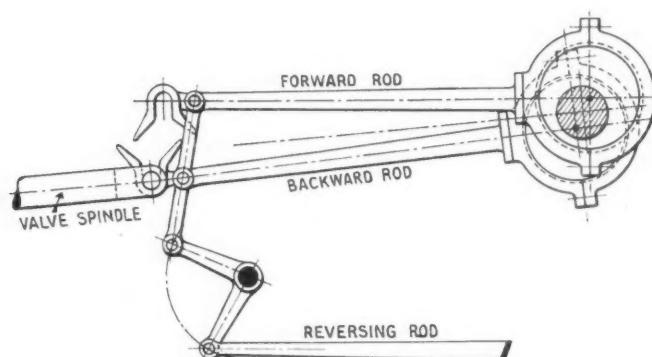


Fig. 7—Early form of Gab valve gear

factory for heavy slow-running engines, and also for express engines when starting from rest with a heavy train, for the higher speeds required with long-distance passenger stock, a moderately short cut-off would suffice. At speed, the heavy reciprocating parts develop a high kinetic energy, and to dissipate this demands a high compression of the steam trapped in the cylinder when the valve closes to exhaust. Not only so, the valve must open before the piston reaches the end of the stroke, so that live steam may be admitted and an absence of throttling ensured when the piston actually commences the new power stroke. This necessitated arranging for what is now called the "lead" of the valve—an amount varying from $\frac{1}{8}$ in. to $\frac{5}{16}$ in., according to the valve gear used and the amount fixed by the designer, some designs of gear being preferred to others due to the variation in lead which is obtained as the gear is notched up.

To obtain the lead and lap movement of the valve at the commencement of the stroke involves, in ordinary link motion, the moving of the eccentric centres angularly as already stated. For Walschaerts gear, the necessary movement is obtained by using a special lever—the combination

are shown in Figs. 8 and 9. The method of operation is dependent on assuming a certain lap in the first instance, and modifying this as may be found necessary; the total valve-travel and the lead also must be assumed. To commence, draw a circle with its radius equal to half the total valve-travel, and let the direction of rotation in foregear be anti-clockwise. Then the L.H. and R.H. extremities of the horizontal dia. of this circle will represent the front and rear positions of the piston.

At "X," draw a circle whose radius equals the lead decided on for the valve in full gear, and from centre "O," draw a part radius equal to the proposed steam lap. Draw a line as shown, tangential to these two circles, and produce to meet the valve travel circle at "M." Drop a vertical through "M" to the horizontal centre line and determine the percentage of

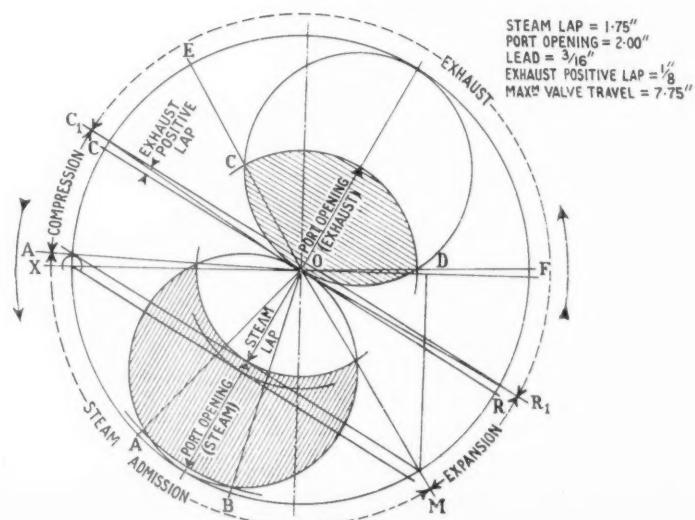


Fig. 8—Typical Zeuner diagram

cut-off obtained. By drawing a further line through the centre of the circle and parallel to the cut-off inclined line, we obtain the points of release (R) and compression (C), each of which can be corrected to R₁ and C₁ in the event of it being found necessary to provide exhaust positive-lap.

If the valve events are not in agreement with the specified requirements, suitable correction will have to be made and this may affect the lap provided for steam admission or exhaust release, as well as the lead. If the cut-off is too late, the steam lap—and consequently the valve travel—must be increased, and *vice versa*. Furthermore, if the exhaust is too early,

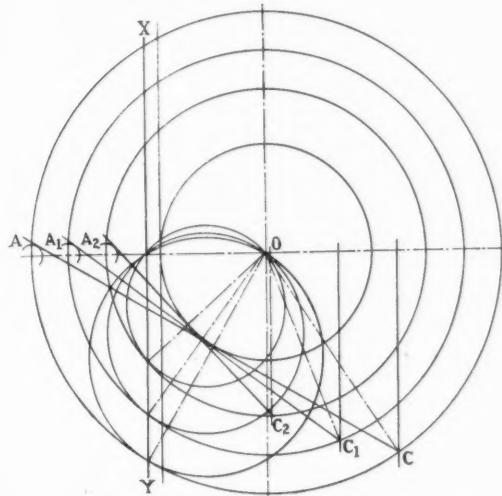


Fig. 9.—Diagram showing valve travel circles and cut-offs for different percentages of cut-off

exhaust positive-lap must be provided, or increased if already provided. It will be seen that delaying the exhaust automatically increases the compression period, also that the effect of the connecting rod obliquity is to delay the point of cut-off in the backward stroke, and advance it in the forward stroke.

A method of drawing the above diagram which eliminates the trial and error method involved in the preceding paragraph, is given on pages 290-1 of *The Railway Engineer* for August, 1926, and although a quick designer can obtain his requirements rapidly with the method just outlined, the alternative has many excellent points to commend it.

It will be noticed that the total valve travel exceeds the usual amount of twice the lap plus the port opening in Fig. 8; this has been done to ensure that the full port-opening to steam shall occur for an angular distance "AB" of the crank's movement, instead of being, as frequently occurs, merely a peak position, which is reached and passed at one and the same instant.

To show the period of full port-opening to exhaust, from centre "O" with radius equal to the width of port opening (less the amount of negative exhaust lap where such is provided), draw the part circle, and through the points "C" and "D" of the intersection of the secondary valve circle with the port-opening radius, draw two radii to meet the main valve travel circle in "E" and "F". The full port opening to exhaust thus will occur for the rotation of the crank as it passes from "F" to "E".

Perpendiculars dropped from the several events (cut-off, release and compression), to the main horizontal centre, will enable the percentages to be calculated in relation to the full stroke; these, as already suggested, should be corrected to compensate for the obliquity of the connecting rod, and it must be remembered that these percentages are only approximately correct, as the design and proportion of the valve mechanism undoubtedly will influence the final results, although only to a small extent with a carefully worked-out gear.

The corresponding valve-travel circles, cut-offs and so on, for different percentages of cut-off are shown in Fig. 9, worked out on similar lines to Fig. 8; the several crank points for admission and cut-off are indicated at A, A₁ and A₂ and C, C₁ and C₂, respectively. The line XY represents the offset amounting to the sum of the lap and the lead, and it will be observed that the primary valve circle dia. each fall on this line.

It will be seen, therefore, that amount of steam and exhaust lap determines the position of cut-off, exhaust compression and inlet, and the trend for a number of years past, for first-class engine stock, has been to increase the steam lap and consequently the valve travel. In some cases the specification calls for the maximum port-opening to be available for steam, through a certain percentage of the stroke when in full gear; Fig. 8 shows how this is achieved. A large steam-lap almost invariably means a generous outlet for exhaust, and therefore a lower back-pressure acting against the piston.

Valve Gear Mechanisms

The tendency on British railways today is towards the outside valve-gear for the two-cylinder engine, that almost invariably chosen is the Walschaerts, on account of the very good results obtained from it in service. Formerly, valve gears were adopted largely as the result of the Chief Mechanical Engineer's particular preference, but modern outside-cylinder units have a surprisingly restricted selection.

In the Walschaerts gear, the valve operation is obtained by the combination of two motions, that of the "combination lever" giving the constant lap and lead movements, and the other from the reversing link, which determines the amount of opening and, therefore, the valve cut-off. When used for outside-cylinder engines, the reversing link generally derives its motion from a "return crank" mounted on the end of the driving crankpin; for inside cylinders an eccentric will be used to rock the link, except in the "Deeley" gear (see Fig. 10), where the crosshead for one motion drives the reversing link in the other.

The Walschaerts gear is almost ideal for outside cylinders, and, in the best layouts, is designed to lie on a common plane (in plan) from reversing link to valve spindle, thus eliminating all offset members. By careful designing, the slip of the die in the foregear position can be cut down below that found in any of the double-

eccentric gears. This gear gives greater freedom for frame stretcher design; is easily accessible for lubrication, inspection, and maintenance; and has less effect on steam distribution due to spring reaction.

With a valve having outside admission, should the die be in the lower half of the link when in forward gear, the eccentric crankpin will lead the main crankpin. If the die is in the upper half of the link when in forward gear, the eccentric crankpin will follow the main crankpin. With a valve having inside admission, the opposite is true.

On two- or four-cylinder locomotives, the ordinary design of valve gear can be used, using a separate set for each cylinder, if preferred. Usually, on the four-cylinder type engine, two sets of Walschaerts gear only are used, one for each of the two outside cylinders. The adjacent cranks for the inside and outside cylinders are placed 180 deg. apart, and all valves are operated by the outside motions, using cross-over levers to transmit the movement to the inside valves. This scheme was used on some 4-6-0 four-cylinder express-passenger engines, designed by Mr. George Hughes when Chief Mechanical Engineer of the Lancashire & Yorkshire Railway, and the same layout was repeated on other four-cylinder units built by the L.M.S.R.

Three-cylinder engines, however, are an entirely different proposition, and there appears to be only two alternatives open to the designer when the orthodox valve is to be used: either to use three independent sets of valvegear, or a separate set for each outside cylinder, plus a conjugated gear for operating the inside valve. By this method the motion of the inside valve is obtained by combining the motions of the two outside valves, the R.H. unit controlling one end of a cross-over lever whose pivot is situated at a pre-determined point between the two end connections. The further end of this lever serves as a fulcrum about which a second floating cross-over lever operates, the latter therefore being subject to bodily displacement. One end of this floating lever is attached to the L.H. valve spindle, and the resultant motion of the opposite end is that required for the centre valve (see Fig. 11). Situated partly outside and partly to the front of the engine, accessibility is good, and to maintain the utmost degree of accuracy of valve motion, recourse is had, wherever possible, to the use of ball or roller bearings.

(To be continued)

RELATIONSHIP OF SIGNALLING AND BRAKE POWER.—At a joint meeting of the Institution of Locomotive Engineers and the Institution of Railway Signal Engineers, on October 12, Mr. O. S. Nock will read a paper entitled "The Relationship of Signalling and Brake Power in the Handling of Modern Traffic." The meeting will be held at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 6 p.m.

L.M.R. RAIL CARTAGE COURSES AT DERBY.—Cartage supervisors from all parts of the London Midland Region of British Railways have been attending a course at the Derby School of Transport to exchange ideas, knowledge, and experience on all aspects of rail cartage. There were two weekly sessions of 30 students and among the twelve subjects dealt with were claims, prevention, cartage accidents, greater efficiency, and development of cartage services; discussion on each of these items was opened by an expert on the subject.

Locomotive Valves and Valve Gears—I

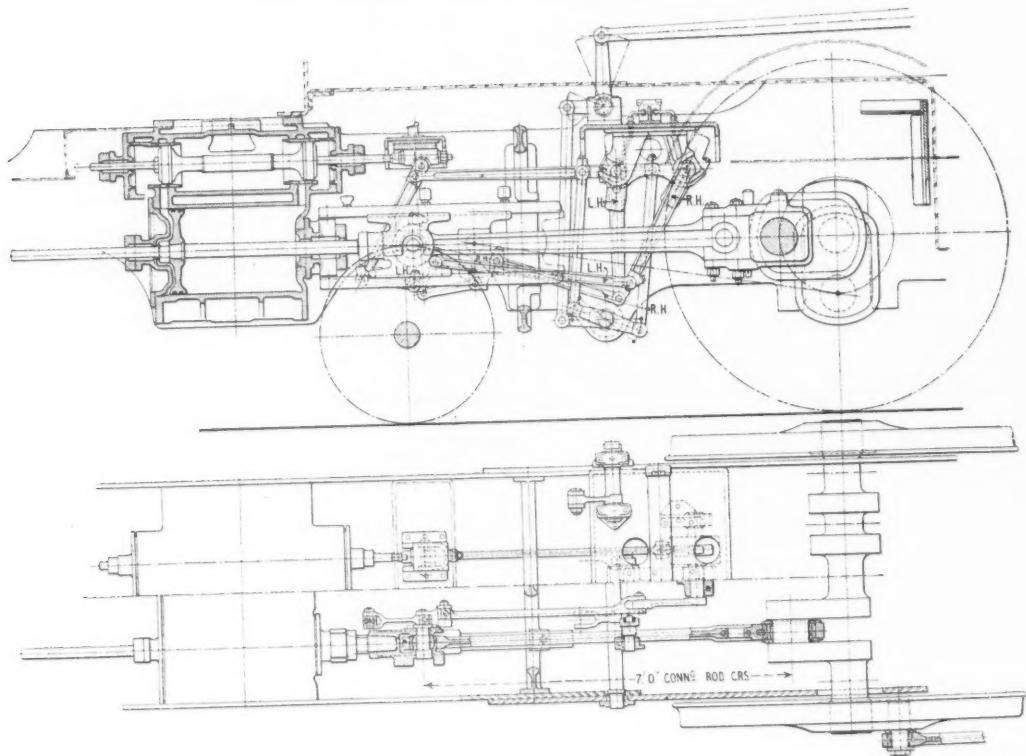


Fig. 10—Deeley-Walschaerts valve gear

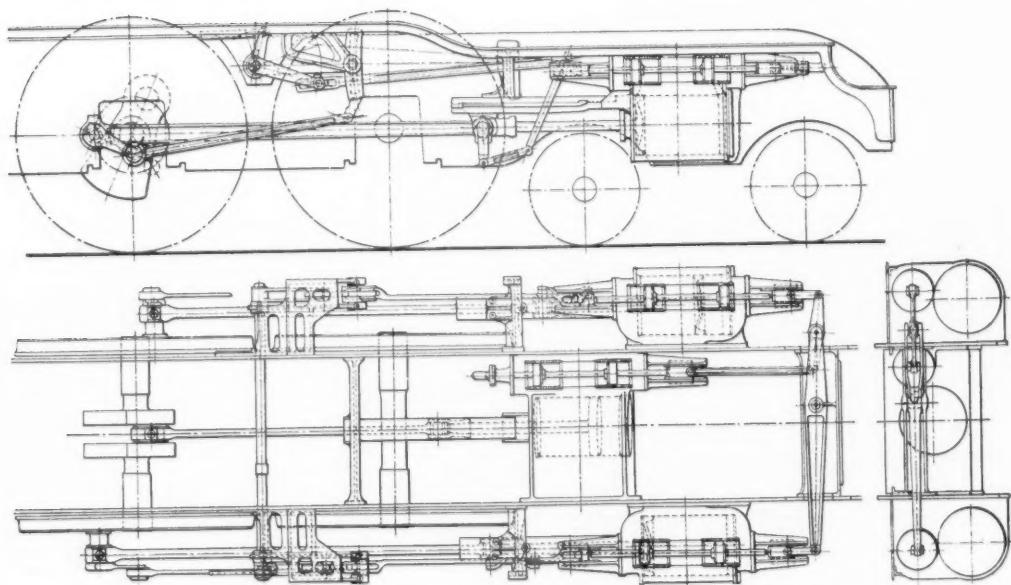
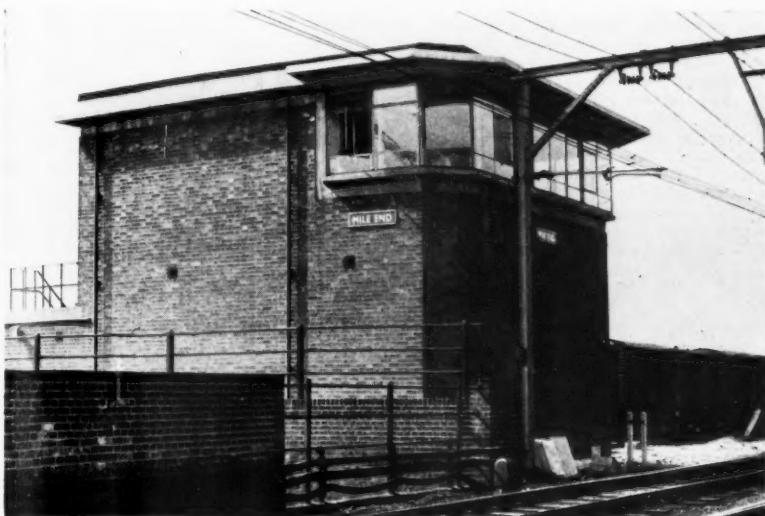


Fig. 11—Gresley valve gears on three-cylinder Pacific locomotives

Opening of the Liverpool Street—Shenfield Electrification

Improved train services on Eastern Region main line carrying heavy London suburban traffic



Exterior of the new signal box at Mile End

A NOTABLE improvement in the transport facilities of an extensive and densely-populated suburban area, on the east side of London, has been secured by the electrification of the Eastern Region main line from Liverpool Street to Shenfield on September 26. The difficulty of providing adequate services for these rapidly-growing districts became acute nearly 30 years ago, but the Great Eastern Railway was unable to bear the cost of electrification at the inflated prices ruling after the end of the first world war. The problem was overcome, to an appreciable extent, by re-modelling the services, and introducing a 2-min. headway, during the peak hours, with steam trains of up to 10 coaches in length.

The complex network of conflicting lines in the neighbourhood of Stratford, four miles from Liverpool Street, was a serious obstacle to the introduction of intensive electric services. To overcome this difficulty, the L.N.E.R. (into which the G.E.R. had been merged at grouping in 1923) considered the construction of a deep-level tube from Liverpool Street to Ilford, but the scheme was abandoned, on the grounds of expense. However, the formation of the London Passenger Transport Board, in 1933, and the establishment of a pool with the main-line railway companies, enabled the whole problem of transport in North-East London to be considered as one project, regardless of ownership.

Advantage was taken of the 1935 New Works Programme for spending £45,000,000 on improving London's transport, to relieve the approach to Liverpool Street by extending the Central Line tube from that station to Stratford and Leyton, and from Leytonstone to Newbury Park. The completion of these new works, and the electrification, on the 600-volt d.c. system, of the associated group of L.N.E.R. lines, was delayed by the recent war. By November, 1948, however, tube trains were running to Loughton, and on the Fairlop Loop, and the entire passenger service on

these lines had been transferred to the Central Line. The tube trains were extended to Epping on Sunday last, September 25, leaving only the 6½ miles of single line from Epping to Ongar to be worked by steam trains.

Overhead Electrification

In 1935, the L.N.E.R. decided to electrify its main line from Liverpool Street to Shenfield on the 1,500-volt d.c. overhead system, and the works were well in hand by the Summer of 1939. They were suspended during the war years, but were resumed as soon after the cessation of hostilities as the continuing abnormal conditions permitted. Four tracks (two through and two local) have been electri-

fied throughout the 20 miles from London to Shenfield.

Heavy civil engineering works, and extensive track and signalling alterations were necessary to reduce conflicting train movements to a minimum. One of the most important features of the scheme has been the construction of a flyover, which carries the up and down local lines over the through lines, between Manor Park and Ilford. The reason for this change was to enable the local trains from Shenfield and Gidea Park, which start their journeys on the northernmost pair of tracks to reach the east side of Liverpool Street Station without crossing the main lines on the level, and to facilitate the interchange of passengers with the Central Line at Stratford. The flyover was brought into use on October 6, 1947, and was illustrated in our issue of November 28, 1947.

Track and Station Alterations

At Liverpool Street Station, the tracks have been re-arranged, so that the through lines are on the west, and the local lines to the east, whereas formerly the positions were reversed. Of the three pairs of tracks leaving the station, the westernmost pair are used by the local trains to Enfield and Chingford, which diverge at Bethnal Green. The middle pair have become the through lines for fast trains to Ilford and beyond, and also carry the Cambridge main-line traffic, as far as Bethnal Green. The easternmost pair are now the slow lines between London and Ilford flyover. The successive stages in the intricate task of re-arranging the tracks with the minimum interference to traffic were described in detail in our issue of April 15, 1949.

Several of the intermediate stations between London and Shenfield have been modernised and improved. At Stratford, the station was remodelled with additional platforms and running lines, to accommodate the Central Line tube trains, and to facilitate the interchange of passengers. New platforms have been provided on the local (formerly through) lines at Maryland, Forest Gate, and Manor Park. Also, extensive alterations have been undertaken at other stations. The original scheme provided for a new station at Crowslands (between Chadwell Heath and Romford), but it has been decided not to undertake



Interior of the new signal box at Bethnal Green, showing the control panel

its construction, as the surrounding area has become part of the Green Belt.

Colour-Light Signalling

To permit of a possible 1½-min. headway between trains, four-aspect colour-light signalling, with continuous track circuiting, has been installed between Liverpool Street and Gidea Park. Colour-light signals already are in use between Gidea Park and Chelmsford, and Southend, and the new installation thus completes one of the longest continuous sections of colour-light signalling on British Railways. Nine new signal boxes, situated at Liverpool Street, Bethnal Green, Mile End, Bow Junction, Stratford, Ilford Station, Ilford Car Sheds, Goodmayes, and Chadwell Heath, have been provided; and the existing boxes at Forest Gate, Romford, and Gidea Park have been modernised. These 12 boxes, and the signals controlled from them, have

75 m.p.h. To allow for adequate braking distance on the main lines, it has been necessary, in some cases, to provide for a succession of three double yellow aspects showing consecutively, to provide adequate braking distance from the first double yellow to the red aspect, which is always preceded by a single yellow aspect. The use of "closing up" signals, at the entrance to station platforms, is a feature new to main line working, although this principle has been applied on London Transport lines. All running signals are equipped with telephones, which enable a driver, when stopped at a signal, to communicate with, and receive instructions from, the signalman. These telephones are on a coded selective system, and the illumination of an indicator shows the signalman from which signal he is being called. The risk of instructions intended for one driver

cabins are unattended, and are controlled through pilot cables from a control station at Chadwell Heath, which is manned continuously by two operators. In the control room, all controls are concentrated on a single desk, from which any circuit breaker or oil switch can be operated. All switching changes are indicated immediately to the operator by small red and green lamps on the desk. If a fault develops in the system, it is indicated at once to the operator. The control desk also incorporates instruments for registering the voltage or current output at any sub-station. Telephones are provided for communication with sub-stations, section cabins, and other vital points. The supervisory remote control system was installed by Standard Telephones & Cables Limited, and is the first in Great Britain for controlling and indicating a 1,500-volt d.c. overhead traction supply.

The main contract for the overhead



Forest Gate Station under reconstruction, showing the steelwork for the new platform covering

enabled 33 mechanically-operated boxes to be abolished. The main contracts for the new signalling were awarded to the Siemens & General Electric Railway Signal Co. Ltd. (Liverpool Street to Bethnal Green); Metropolitan Vickers G.R.S. Limited (Mile End to Stratford); and the Westinghouse Brake & Signal Co. Ltd. (Forest Gate to Gidea Park). The Siemens & General Electric Railway Signal Co. Ltd. also supplied the train describers in the signal boxes.

Six of the new boxes are equipped with switch control panels operated on the route relay interlocking system. The others have switch panels, operating on individual switch control principles, electrically interlocked with the mechanical lever frames. The work of the signalmen is further eased by arranging the controls so that, when all signals through an interlocked area are cleared, they become automatic for following trains. Thus, during the peak periods, the signalman does not have to operate any panel switches.

The running signals are spaced to give braking distance for trains travelling at

being received by another is thus eliminated.

Current Supply and Sub-stations

Six sub-stations, situated at Crosswall (near Fenchurch Street), Bethnal Green, Stratford, Chadwell Heath, Gidea Park, and Shenfield, have been provided for converting the incoming 33,000-volt three-phase alternating current to 1,500-volt direct current. The rectifiers are of the six-anode pumpless steel tank type. At Crosswall, and Bethnal Green, where space was severely restricted, indoor-type high tension switch gear is installed, but the other sub-stations have the outdoor type of gear. In addition to the six sub-stations, there are four track-sectioning cabins equipped with high speed circuit breakers, which enable the overhead conductors to be divided into the correct lengths for protection in the event of a fault, and to facilitate the sectionalising of the line if required. The main contractor for the electrical equipment of the sub-stations was the General Electric Co. Ltd.

The sub-stations and track-sectioning

equipment was let to the British Insulated Callenders Cable Co. Ltd. The high-tension cables were supplied by Johnson & Phillips Limited, and the pilot cables by Standard Telephones & Cables Limited. The overhead equipment provides for a total conductor section of $\frac{1}{2}$ sq. in. for every track, and consists of a cadmium copper contact wire suspended by short droppers from an intermediate catenary, which is supported by longer droppers from a main catenary. The main catenary is supported by insulators attached to the overhead steel structures. Sectioning gaps, controlled by switches, are provided at intervals. To secure even wear of the pantograph collectors, the contact wire is offset to one side at every structure. This side registration is effected by hinged steady arms, attached at one end to the contact wire, and at the other to a non-ferrous bar, placed between the intermediate catenary and the side registration insulator.

The return circuit passes through the running rails, which are bonded by a rope stranded copper bond, gas-welded to the

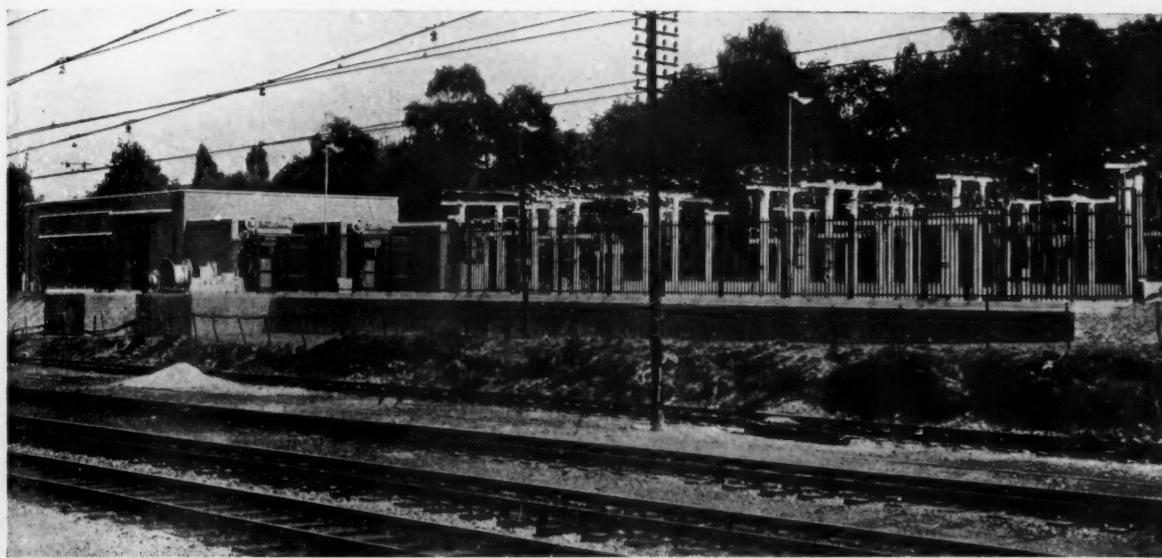
rail heads. The structures are bonded to the rails where single-rail track circuits are in operation, but where double-rail circuits are used the structures are connected by an earth wire, and bonded to the centre point of impedance bonds.

The normal spacing of the overhead structures is 210 ft., but the spacing is reduced on curves, to avoid, as far as possible, the use of intermediate pull-off wires. There are several low bridges, where only the minimum contact wire height (13 ft. 5 in. above the rails) can be provided, and in many cases, special types of construction are necessary. Bench marks are provided at every bridge, to ensure that the tracks

The weights of the motor, trailer, and driving trailer coaches are 50 tons 17 $\frac{1}{4}$ cwt., 26 tons 8 $\frac{1}{2}$ cwt., and 27 tons 9 $\frac{1}{2}$ cwt. respectively. Thermosytically controlled heaters are fitted under the seats, and lighting is provided by two rows of bowl fittings of special design, attached to the ceiling.

The coaches are fitted with two pairs of sliding doors on each side. The doors are pneumatically-operated by the guard from the end luggage compartment. Buttons are provided to allow passengers to open individual doors after the guard has operated his master control, but the closing of all doors is always performed by the guard.

planned to withdraw the whole of the suburban steam service between London and Shenfield on November 7, and to substitute an increased and accelerated service of electric trains. When the full time-table comes into force, early next year, there will be 21 electric trains an hour out of Liverpool Street, during the peak periods. Of these, 3 will call at all stations to Shenfield; 3 at all stations to Gidea Park; 6 at Stratford, Seven Kings, and all stations thence to Gidea Park; 6 will run non-stop to Ilford; and 3 non-stop to Romford, and call at all stations thence to Shenfield. The semi-fast trains to Gidea Park will reach Seven Kings in 15 $\frac{1}{2}$ min., and Gidea Park



General view of the sub-station at Shenfield

are maintained at the correct level.

The supporting structures are constructed of broad-flange beams, which form simple portal structures, where up to four tracks are spanned. For larger structures, and anchor structures, lattice-type girders are used. The structures are painted with silicon graphite paint, and to reduce maintenance painting costs, all the steelwork was flame-cleaned before erection.

Rolling Stock

The 92 three-coach units required for the new services are being supplied by the Birmingham Railway Carriage & Wagon Co. Ltd., and the Metropolitan-Cammell Carriage & Wagon Co. Ltd. The main contractors for the electrical equipment of the coaches were The English Electric Co. Ltd. The three-coach units consist of a motor coach (with driver's cab and luggage compartment), a trailer coach, and a trailer motor coach with a driver's cab. During the peak periods, three of these units are coupled together to form a nine-coach train, but at other times of the day, this formation may be reduced. The full-length sets will accommodate 1,224 passengers (528 seated, and 696 standing) compared with an average of 1,000 passengers, seated and standing, in a steam-hauled 10-coach train.

The coaches, which are of the open saloon type, with seats arranged longitudinally and transversely, are of all-steel construction, and 9 ft. 3 in. wide. The motor coaches are 60 ft., and the trailer coaches 55 ft., long over the underframes.

A small light on the side of every coach indicates whether the doors have closed properly. Should any door fail to close, it is not necessary to take the train out of service, as the faulty vehicle can be isolated, after the passengers have transferred to other coaches.

The motor coaches are fitted with four 210-h.p. self-ventilated traction motors, controlled by electro-pneumatic contactors mounted in cases on the underframes. The pantographs are air-operated, and are controlled by push buttons in the driver's cab. Electro-pneumatic brake gear enables closely graduated brake applications to be made.

The sidings and car sheds for the electric trains have been established at Ilford, on the east side of the station, adjoining the down local line. The equipment of the repairs section includes two 25-ton overhead travelling cranes, a machine shop, fitting shop, battery room, and stores. Supplies of lubricating and lamp oils are delivered by pressure pumps, and measured by "Minimeters," supplied by Tecalemit Limited. The inspection shed has specially-designed pits, with fluorescent lighting, and the platforms in the cleaning shed are equipped with hot and cold water, vacuum, and electric points. At the east end of the yard, there is a rotary carriage washing plant, specially designed to suit overhead equipment.

At present, only a limited service of 38 electric trains a day (working to the schedules of the steam trains that they have displaced) is in operation, but it is

in 27 min. The Ilford non-stops will take 12 min. The Romford non-stops will reach Romford in 17 min., Brentwood in 29 min., and Shenfield in 33 min.

Engineers and Contractors

The civil engineering works were carried out under the supervision of Mr. J. I. Campbell, Civil Engineer, Eastern Region, by the following contractors :

Demolition, The Demolition & Construction Co. Ltd. Steelwork & Bridges, S. Butler & Co. Ltd.; Cleveland Bridge & Engineering Co. Ltd.; Furness Shipbuilding Co. Ltd.; Matthew T. Shaw Limited; Teesside Bridge & Engineering Works Limited; and Joseph Westwood & Co. Ltd.

Steelwork, The Butterley Co. Ltd. Steelwork at Ilford Car Sheds, E. C. & J. Keay Limited. Roofing at Ilford Car Sheds, Robertson Building Service.

Platform construction, John C. Bills; Caffin & Co. Ltd.; G. H. Miller & Co. Ltd.; Tersons Limited; and Wellerman Bros. Ltd.

Platforms and bridges, Haymills (Contractors) Limited; and Pitchers Limited.

Station buildings, R. Robinson & Co. (Contractors) Ltd.; and J. Wilmott & Sons Ltd.

Heating, Smeaton & Sons Ltd.

Painting, Wm. Latimer & Company.

Concreting, The Cementation Co. Ltd.

Electrical cables, Troughton & Young Limited.

General civil engineering, J. Cochrane & Sons Ltd.; Fletcher & Co. (Contractors) Ltd.; W. & C. French Limited; and G. Percy Trentham Limited.

The electrical equipment was installed under the supervision of Mr. H. H. Swift, Electrical Engineer, Eastern and North Eastern Regions, and the main contractors were :

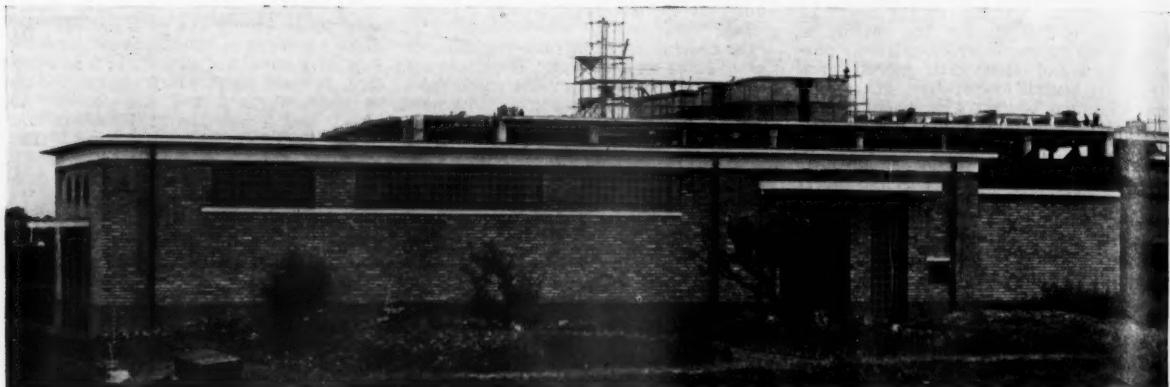
Overhead equipment, British Insulated Callenders Cable Co. Ltd.

Sub-stations, General Electric Co. Ltd.

High-tension and pilot cables, Johnson & Phillips Limited.

(Continued on page 397)

Opening of the Liverpool Street-Shenfield Electrification



Exterior of the Sub-Station at Chadwell Heath. The current supply is received here, and at Crosswall, near Fenchurch Street



View at Ilford carriage sidings from the north-west, showing the repair shed nearing completion



Interior of the repair shed at Ilford, showing the overhead travelling crane

Opening of the Liverpool Street—Shenfield Electrification



Interior view of one of the new coaches, showing the sliding doors and the arrangement of the seating



One of the new nine-coach multiple-unit trains built for the Liverpool Street—Shenfield electrified services

Disposal of Railway Spoil and Rubbish at Barry Dock



Waste material disposal is a function of the Chief Engineer's Department, and in the Western Region about 1,000 wagons a week are worked to tips for unloading. The largest tip, which is at Barry Dock, is shown above



At Barry Dock, where a "pond" 20 ft. deep is being filled in, two discharging machines push the spoil out of the wagons, while two bulldozers work the material to the water's edge, at the same time consolidating the loose fill

RAILWAY NEWS SECTION

PERSONAL

Sir Cyril Birtchnell, Deputy Secretary, Ministry of Transport, Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, and Mr. L. W. H. Savage, a senior highways engineer, are sailing for New York on October 1 in the *Caronia*, on an informal visit to the United States to examine transport matters of common interest. They will be away for several weeks.

The Metropolitan-Cammell Carriage & Wagon Co. Ltd. has appointed Mr. Harry Green, its Chief Engineer (Designs), to be a Special Director of the company.

We regret to record the death on September 20 of Mrs. Esmae Matthews, wife of Mr. Gilbert Matthews, Operating Superintendent, Western Region, British Railways.

Mr. A. L. Mailman and Mr. J. L. Mailman have been elected Directors of the Canadian Locomotive Co. Ltd. in place of Mr. G. M. Todd and Mr. J. A. McDonald, who have retired.

We regret to record the death on September 25, at the age of 46, of Mr. Edgar Lionel Luly, Birmingham District Manager of Babcock & Wilcox Limited.

Dr. Hans Christoph Seehoem has been appointed Minister of Transport in the new German Federal Government.

We regret to record the death, on September 23, at the age of 81, of Lt.-General the Hon. Sir Richard Montagu-Stuart-Wortley, K.C.B., K.C.M.G., D.S.O., who was Honorary Colonel of the Engineer & Railway Staff Corps, Royal Engineers, Territorial Army, from 1924 to 1948. He was Director of Movements, War Office, from 1915 to 1917, and later held the appointment of Quartermaster-General in India.

ROAD HAULAGE EXECUTIVE
The Road Haulage Executive announces the following appointments:—

Mr. E. A. Wilkinson (formerly Secretary, Bouts-Tillotson Transport Limited, and since August, 1948, acting as Secretary of all the Bouts and Holdsworth & Hanson undertakings acquired by the British Transport Commission) to be Assistant Divisional Manager, South Eastern Division.

Mr. B. W. Tyler (formerly in charge of the Road Motor Stores at Slough) to be Divisional Stores Officer, South Western Division.

Mr. B. M. Strouts, Rates, Fares & Development Assistant to the Executive Officer (Passenger), Railway Executive, has been seconded to the Road Haulage Executive to act as Co-ordination Officer (Road-Rail), in succession to Mr. J. C. Chambers, who has taken up a post with the Legal Service of the B.T.C.

We regret to record the death on September 25 of Mr. A. G. Cousins, C.B.E., Chairman of Transport (1910) Limited, the company owning this publication, and of Odhams Press Limited. He was 67. Arthur George Cousins was a man of varied talents and great administrative ability which early made a mark in the business and publishing world. For many years he had been Managing Director of Investment Registry Limited, the finance

dent of the Printers' Pension Corporation. He was connected with a number of charitable societies, and was a prominent freemason. All these activities, however, left him time for his principal recreation, farming. He maintained a farm run on the most up-to-date lines at his home at Bix Manor, Henley-on-Thames. His sense of humour and his friendly approach to others won him the loyalty and affection of those who worked near him. He served

throughout the 1914-18 war, the end of which found him Assistant Quartermaster-General, London District Command. He was created a C.B.E. in 1919. He leaves a widow, son and daughter. A memorial service is being held at St. Mary's Parish Church, Henley-on-Thames, today (September 30), at 3.45 p.m.

Mr. D. F. Gilmour has arrived at the headquarters in London of Transport Equipment (Thornycroft) Limited from Buenos Aires after a six-months tour of Argentina, Uruguay and Brazil, and will return shortly to the Liverpool area to resume his previous duties there.

Mr. W. A. Smyth, Director & General Manager of Henry Meadows Limited, has been elected to the board of W. G. Bagnall Limited.

We regret to record the deaths recently of Mr. H. S. Brown, who retired last year from the position of Resident Engineer, Chile, Antofagasta (Chili) & Bolivia Railway; and of Mr. W. A. Buxton, Assistant Chief Stores Superintendent in Chile for that railway.

**SOUTHERN REGION
APPOINTMENTS**

Mr. O. V. Bulleid, Chief Mechanical Engineer, retires today (September 30) (see also pages 375 and 396). The following appointments have been made, from October 1:—

Mechanical & Electrical Engineering Department

Mr. S. B. Warder to be Mechanical & Electrical Engineer.

Mr. R. A. Smeddle to be Deputy Mechanical & Electrical Engineer.

Mr. M. G. Burrows to be Assistant Mechanical Engineer.

Mr. W. J. A. Sykes to be Assistant Electrical Engineer.

Carriage & Wagon Department

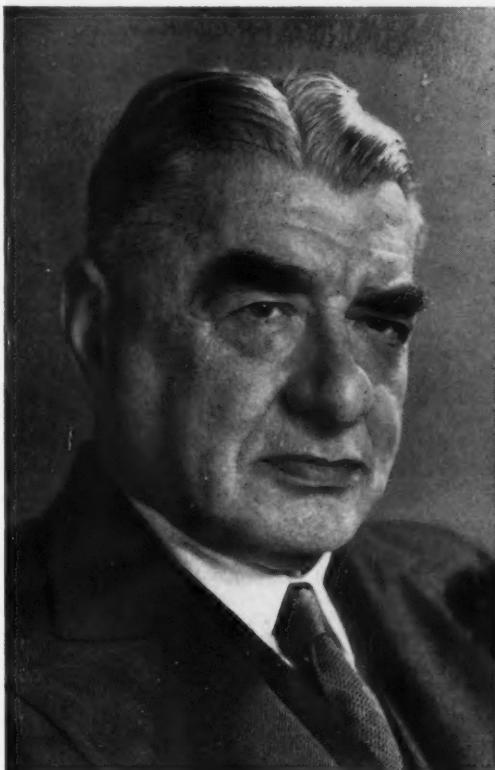
As from October 1, the Carriage & Wagon Department under Mr. F. Munns becomes a separate department responsible direct to the Chief Regional Officer.

Road Motor Engineer's Department

As from the same date, the Road Motor Engineer's Department under Mr. E. M. Jackson becomes a separate department responsible direct to the C.R.O.

Stationery Department

It is announced also that Mr. A. Schulte has been appointed Acting Stationery Officer, and will have direct control of paper and printing matters for the Region previously dealt with in the Stores Department.



The late Mr. A. G. Cousins

Chairman of Transport (1910) Limited, and of Odhams Press Limited, 1946-49

and issuing house, and concurrently a Director of Odhams Press Limited. He was, therefore, the natural successor of Lord Southwood to the Chairmanship of the Odhams Press group of companies when the latter died in 1946. Control of Transport (1910) Limited had passed to Odhams Press in the Autumn of 1945. As a result of his long experience in the publishing business his colleagues were able to reap the benefit of his wise counsel, and in the conduct of the affairs of the group of technical journals owned by Transport (1910) Limited he always made readily available his broad knowledge. In addition to his responsibilities as chairman of a national daily newspaper and of a great publishing house and its subsidiary companies, Cousins was also a member of the council of the Newspaper Proprietors Association and of the Periodical Trade Press and Weekly Newspaper Proprietors Association, a Director of the Newsprint Supply Company, and a Trustee of Reuters. In 1947 he was Festival Presi-

September 30, 1949

Mr. C. H. Coe, who is retiring on November 1 next from the position of Rates Assistant to the Commercial Superintendent, Western Region, British Railways, entered the service of the Great Western Railway in 1904. After several years in the Goods Department at Paddington, he was transferred to the Chief Goods Manager's Office. During the 1914-18 war he was closely connected with the transport of Government traffic and the formulation and subsequent working of the scheme for common user of railway-owned wagons and sheets. He was afterwards engaged on the "journey payment" scheme for the user of wagons and sheets as between the railway companies. In 1926 Mr. Coe was appointed Clerk-in-Charge of the Working Department, and played an important part in negotiations with the Association of Private Wagon Owners for the introduction of the commuted payment scheme for empty haulage of private owners' wagons. In 1936 he assumed responsibility for an intensive inquiry into the causes of the depreciation of railborne goods traffic, with particular regard to railway merchandise rates, under the designation of "traffic research." Mr. Coe was appointed Rates Assistant (Research) in 1939. He was Chairman of the committee which formulated and launched the scheme for inter-company control of freight rolling stock, and became the G.W.R. representative on the Road-Rail Central Conference. He became Rates Assistant to the Chief Goods Manager in 1941, and since then has been associated with the Road-Rail Conference and has become responsible for Continental and Irish traffic arrangements on behalf of the G.W.R. (now Western Region).



Mr. C. H. Coe

Rates Assistant to the Commercial Superintendent, Western Region, who is retiring



Mr. O. V. Bulleid

Who is retiring as Chief Mechanical Engineer, Southern Region, British Railways, and is appointed Consulting Mechanical Engineer, Coras Iompair Eireann

Mr. O. V. Bulleid, C.B.E., M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer, Southern Region, British Railways, who retires from that position today (September 30), and has been appointed Consulting Mechanical Engineer to Coras Iompair Eireann (Irish Transport Company), joined the former Great Northern Railway in 1901, as a premium apprentice at Doncaster. In 1906 he was made Assistant to the Locomotive Running Superintendent, and, in the next year, Assistant to the Works Manager. He left the G.N.R. in 1908, to become Assistant Works Manager at the Freinville Works of the French Westinghouse Company. In 1910 he was appointed Mechanical Engineer to the Exhibitions Branch of the Board of Trade for the Brussels and Turin Exhibitions of 1910 and 1911. He returned to Doncaster in 1912, as Personal Assistant to Sir Nigel Gresley. In 1914 Mr. Bulleid was commissioned in the Army Service Corps; he served at G.H.Q. and Army Headquarters in France, and was promoted Major in 1917. He was transferred to Richborough as Works Manager in August, 1918, and was demobilised in February, 1919, after which he returned to Doncaster. In 1920 he was appointed Assistant Carriage & Wagon Superintendent, and in April, 1923, he became Assistant to Chief Mechanical Engineer, L.N.E.R., which position he held until he joined the Southern Railway as Chief Mechanical Engineer in 1937. In 1939 Mr. Bulleid was elected a member of the Permanent Commission of the International Railway Congress Association,

and in 1943 he was appointed to represent the Institution of Mechanical Engineers on the War Damage (Earth Movements) Committee of the Institution of Civil Engineers. Mr. Bulleid was President of the Institution of Mechanical Engineers for 1946-47; was President of the Institution of Locomotive Engineers from 1939 to 1944; and is President of the Institute of Welding for 1949-50. He is also a member of the general council of the Engineers' Guild. Last year, with other railway officers, he went to Eire to assist Sir James Milne in his inquiry into the transport position there. Mr. Bulleid was made a C.B.E. in the New Year Honours this year.

Mr. K. N. Eckhard, M.I.E.E., M.I.Loco.E., M.Inst.T., who, as recorded in our August 26 issue, has retired from the position of Chief Electrical Engineer, General Mitre (former Central Argentine) Railway, became a pupil with Spagnoletti Limited, and later served an apprenticeship with London United Tramways. In 1909 he joined the London Electric Railways. He left for Argentina in 1912, and in the next year joined the Central Argentine Railway, then engaged on suburban electrification. In 1920 he was appointed Resident Engineer in charge of the Electrification Section, C.M.E. Department. When that section became a separate department in 1926, he was appointed to the position from which he

now retires. He was also responsible for the maintenance of diesel railcars, and in 1945 was a member of the Motive Power Committee sent by the British-owned railways in Argentina to the U.S.A. and Europe to investigate the latest developments in diesel-electric traction.



Mr. K. N. Eckhard

Chief Electrical Engineer, General Mitre (former Central Argentine) Railway, who has retired

Engineer and Contractors

(Concluded from page 391)

Materials and equipment were supplied by the following contractors:—

Overhead structures, Wm. Bair & Co. Ltd.; Dorman Long & Co. Ltd.; Painter Bros. Ltd.; and R. A. Skelton & Co. Ltd.

Insulators, Bullers Limited, Bushing Co. Ltd.; General Electric Co. Ltd.; and Steatite & Porcelain Products Limited.

Insulating oil, W. B. Dick & Co. Ltd.; and Silvertown Lubricants Limited.

Cables, Johnson & Phillips Limited; Pirelli General Cable Works Limited; and Standard Telephones & Cables Limited.

Concrete cable posts, and cable troughing, Wates Limited.

Conduits, General Electric Co. Ltd.

Batteries for switchgear operation and supervisory control, Pritchett & Gold & E.P.S. Co. Ltd.

High-tension structures, and concrete structures, Croft Granite Brick & Concrete Co. Ltd.

Fuses, Electric Transmission Limited; and General Electric Co. Ltd.

Switches and circuit breakers, General Electric Co. Ltd.

Transformers and switchgear, The English Electric Co. Ltd.; Johnson & Phillips Limited; and Transformer & Electric Construction Co. Ltd.

Relays, General Electric Co. Ltd.; and A. Reyrolle & Co. Ltd.

Meters, Chamberlain & Hookham Limited; Everett Edgcumbe & Co. Ltd.; and General Electric Co. Ltd.

Telephones and supervisory control apparatus, Standard Telephones & Cables Limited.

Paint (outdoor), C. R. Averill & Son Ltd.

Fire extinguishing equipment, Walter Kidde & Co. Ltd.

Pressure detectors, Westminster Engineering Co. Ltd.

Heating and lighting equipment, N. G. Bailey & Co. Ltd.; Bastian & Allen Limited; Benjamin Electric Limited; Edison Swan Electric Co. Ltd.; Holophane Limited; Phillips Electrical Company; and Simplex Electric Co. Ltd.

Ventilation, Ozonair Limited; and Vent-Axia Limited.

Motors, pumps, and compressors (at Ilford car sheds), Brookhurst Switchgear Limited; Broom & Wade Limited; Crompton Parkinson Limited; and Worthington Simpson Limited.

Oil storage and issuing system, F. Braby & Co. Ltd.

Oil meters and pumps, Tecalemit Limited.

Carriage cleaning equipment, British Vacuum Cleaner & Engineering Co. Ltd.

Cranes and goods lifts, Babcock & Wilcox Limited; Steels Engineering Co. Ltd.; and W. Wadsworth & Sons Ltd.

The new signalling system was installed under the supervision of Mr. A. Moss, Signal and Telecommunications Engineer, Eastern Region. The main contractors for this work were:—

Liverpool Street to Bethnal Green, and train describers in all signal boxes, Siemens & General Electric Railway Signal Co. Ltd.

Mile End to Stratford, Metropolitan-Vickers G.R.S. Limited.

Forest Gate to Gidea Park, Westinghouse Brake & Signal Co. Ltd.

Mr. A. H. Peppercorn, Chief Mechanical Engineer, Eastern and North Eastern Regions, was responsible for the new rolling stock, which was built by the Metropolitan Cammell Carriage & Wagon Co. Ltd., and the Birmingham Railway Carriage & Wagon Co. Ltd. The following contractors supplied materials and equipment:—

Steelwork, Appleby-Frodingham Steel Co. Ltd.; Dorman Long & Co. Ltd.; Patent Shaft & Axletree Co. Ltd.; Round Oak Works Limited; Sheldon Iron & Steel Co. Ltd.; Steel Peech & Tozer Limited; John Summers & Sons Ltd.; and Richard Thomas & Baldwin Limited.

Iron and steel castings, Edgar Allen & Co. Ltd.; Gloucester Foundry Limited; Hadfields Limited; and Robert Hyde & Co. Ltd.

Alpax castings, Lightalloys Limited.

Non-ferrous castings, Phosphor Bronze Co. Ltd.

Rivets and bolts, Cooper & Turner Limited; and Guest, Keen & Nettlefolds Limited.

Aluminium, British Aluminium Co. Ltd.; and Northern Aluminium Co. Ltd.

Small ironwork, J. Shakespeare & Co. Ltd.

Tubes, Accles & Pollock Limited; Stewarts and Lloyds Limited; Talbot Stead Tube Co. Ltd.; and Tubes Limited.

Wheels and axles, Owen & Dyson Limited; and Taylor Bros. & Co. Ltd.

Axle box oilers, Armstrong Oiler Co. Ltd.

Springs, English Steel Corporation Limited; and Turton Bros. & Matthews Limited.

Bearings, Anti-Attrition Metal Co. Ltd.

Brake gear, Westinghouse Brake & Signal Co. Ltd.

Steel floors, Steel Ceilings Limited.

Cork flooring, J. W. Roberts Limited.

Linoleum, Jas. Williamson & Son Ltd.

Plywood and block board, Flexo Plywood Industries Limited; and Saro Laminated Wood Products Limited.

Panel work, Austin Veneer & Panel Co. Ltd.

Window frames, Henry Hope & Sons Ltd. Glass, Pilkington Bros. Ltd. Rubber fittings, Clyde Rubber Works Co. Ltd.; Cromwells Limited.

Metallic fittings, Jones & Foster Limited; Laycock Engineering Co. Ltd.; G. Spencer Moulton & Co. Ltd.; and A. G. Wild & Co. Ltd.

Pneumatic door-operating gear, G. D. Peters & Co. Ltd.

Door locks, J. Kaye & Sons Ltd.

Lighting, J. Stone & Co. Ltd.

Seating, Vi-Spring Products Limited.

Upholstery and materials, Connolly Bros. (Curriers) Ltd.; and John Holdsworth & Co. Ltd.

Alarm signals, Passenger Communication Co. Ltd.

Windscreen wipers, Metropolitan Vickers Electrical Co. Ltd.

Speedometers, British Thomson-Houston Co. Ltd.

Paint, Docker Brothers; I.C.I. (Paints) Limited; and Robert Kearsley & Co. Ltd.

Mr. H. H. Swift was responsible for the electrical equipment of the new trains. The main contractors were The English Electric Co. Ltd., and the following firms supplied materials and equipment:—

Electro-pneumatic brakes, Westinghouse Brake & Signal Co. Ltd.

Main resistances, Siemens Bros. & Co. Ltd.

Steel conduit, Simplex Electric Co. Ltd.; and Walsall Conduit Company.

Gears and H.T. fuses, Metropolitan Vickers Electric Co. Ltd.

Motor frame castings, Edgar Allen & Co. Ltd.; and English Steel Corporation Limited.

Roller Bearings, Skefko Ball Bearing Co. Ltd.

Voltage regulators, J. Stone & Co. Ltd.

Reverse current relays, Simms Motor Units Limited.

Low tension fuses, L. Weeks (Luton) Limited.

The equipment at Ilford Car Sheds includes materials and plant supplied by the following contractors:—

Drilling machines, Alfred Herbert Limited.

Honing machine, John Holroyd & Co. Ltd.

Hacksaw machine, George Hatch Limited.

Grinding machine, Luke & Spencer Limited.

Shaping machine, Butler Machine Tool Co. Ltd.

Lathes, Dean Smith & Grace Limited.

Screwcutting machine, John Lang & Sons Ltd.

Wheel lathe, Scottish Machine Tool Corporation Limited.

Smithy plane, Keith Blackman Limited.

Motor generators, Mawdsley's Limited.

Battery charger, Standard Telephones & Cables Limited.

M.G. arc welder, Murex Welding Processes Limited.

Degreasing plant, Imperial Chemical Industries Limited.

Ventilating plant, Brightside Foundry & Engineering Co. Ltd.

Electric Trains to Shenfield

Minister of Transport inaugurates Eastern Region suburban electrification

Mr. Alfred Barnes, Minister of Transport, performed the opening ceremony at Liverpool Street on September 26, of the new electric services to Shenfield. The changeover from steam to electric traction will be accomplished in stages, and be completed on November 7, when steam suburban services on this section of the Eastern Region will be entirely withdrawn. It is hoped to bring the full timetable into force early next year.

Before the departure of the special nine-car train provided for the guests, the Minister was received at Liverpool Street by Sir Eustace Missenden, Chairman of the Railway Executive, who presided, and at a simple ribbon-cutting ceremony the Minister declared the service open.

Among those who accepted invitations were:—

Sir George Aylwin, Lord Mayor of London, Sir Gilmour Jenkins, Permanent Secretary, Ministry of Transport, Sir Cyril Birtchnell, Deputy Secretary, Ministry of Transport, Sir Cyril Hurecomb, Chairman, British Transport Commission, Sir Eustace Missenden, Chairman, Railway Executive, Lord Rusholme and Sir William V. Wood, Members, British Transport Commission, Messrs. V. M. Barrington-Ward, David Blee, J. C. L. Train, General Sir Daril Watson, and Mr. C. Nevile, Members, Railway Executive, Messrs. John Cliff, A. H. Grainger, and L. C. Hawkins, Members, London Transport Executive, Major-General G. N. Russell, Chairman, Road



Mr. Alfred Barnes, Minister of Transport, inspecting the special train which inaugurated electric services from Liverpool Street to Shenfield on September 26

Haulage Executive, and Mr. G. Cardwell, Chairman, Road Passenger Executive. Members of Parliament of the constituencies, and civic authorities of the districts served by the line.

Introduced to the Minister of Transport were the following officers of the Eastern Region: Messrs. A. J. White, Assistant Chief Regional Officer, H. H. Swift, Electrical Engineer, J. I. Campbell, Civil Engineer, A. Moss, Signal & Telecommunications Engineer, A. H. Peppercorn, Chief Mechanical Engineer, E. W. Rostern, Operating Superintendent, A. R. Dunbar, Divisional Operating Superintendent (Eastern), L. P. Parker, Motive Power Superintendent, C. G. G. Dandridge, Commercial Superintendent, and G. M. Booth, Stationmaster, Liverpool Street, and members of the staff, including Mr. H. B. Pearce, guard of the special train.

At 11 a.m. the inaugural special train left Platform 15 at Liverpool Street. In the motorman's cabin with the Minister was Leading Motorman A. G. Turner, who joined the former Great Eastern Railway in 1913, and who, after considerable experience on steam suburban trains out of Liverpool Street, has now been chosen as one of the motormen for the new services. On the journey to Shenfield, the train, conveying some 300 guests, called at Stratford, Maryland, Ilford, and Romford, for inspection of stations and equipment, and to enable a number of railwaymen, who had been actively concerned in the electrification, to be introduced to the Minister. The special train was running to a steam train schedule, between regular services, and no sustained high speed was possible, but acceleration from stops and signal checks, and particularly up the Brentwood Bank, was most marked. The new rolling stock rode extremely well, and a high standard of comfort has been achieved with the seating arrangements.

After a brief interval at Shenfield, the train returned non-stop to Liverpool Street, and the guests adjourned to the Abercorn Rooms for lunch. After the Loyal Toast had been honoured, Sir Eustace Missenden, in his speech of welcome to the Minister of Transport, recalled that electrification out of Liverpool Street was projected some forty years ago, but it was not until 1936 that work on the present scheme was begun. Good progress had been made by the summer of 1939, but the works had to be suspended during the war years. They were resumed in 1946.

Sir Eustace Missenden paid tribute to the railway staffs in the offices and on the ground responsible for carrying the great work to completion, and to the consulting engineers and contractors. He admired the patience of the travelling public, who, for many years, had been inconvenienced by serious overcrowding and frequent delays. Now that he had seen the new trains he was sure their patience would be rewarded. While transport in the London area was still a growing problem, it was being tackled under the able guidance of Sir Cyril Hurcomb, both by the London Transport Executive and the Railway Executive. He regretted personally that Lord Latham, Chairman, London Transport Executive, was unable to be present, but welcomed his deputy, Mr. Cliff. In closing he presented to the Minister as a memento, the scissors which the Minister had used to cut the tape at the opening ceremony.

Mr. Alfred Barnes emphasised that this was a legitimate opportunity for offering congratulations to all concerned. He could only regret that Sir Ronald Matthews could not be present, and that the late

Lord Ashfield had not been spared to share his gratification. The suburban services out of Liverpool Street were the most intensive steam-operated services in the country, but the electrification had been carried out without serious interruption to this traffic.

He had represented East Ham in Parliament for some years, and appreciated the difficulties with which the former L.N.E.R. and London Transport had had to contend in East London, and he acknowledged the rapidity with which both had tackled the problem after the establishment in 1935 of the pooling scheme for the London area. It was with pleasure that he had seen the project emerge to completion despite present-day difficulties. He was sure that the high standard set by British Railways would be maintained.

The Lord Mayor spoke of the satisfaction felt in the City at the completion of this great undertaking. Today the whole world depended on transport. He joined with the previous speakers in offering hearty congratulations to all who had been engaged on this work.

Sir Cyril Hurcomb stressed that the electrification had concerned many departments of the railway, and the work had had to proceed in accordance with a carefully-arranged programme. East Londoners would now have a good electric service and the interchange facilities with the Central Line at Stratford would be a great boon. Overhead electrification had been adopted between Liverpool Street and Shenfield, and it was on this system that future main-line electrification would be undertaken.

Formerly housing estates often were developed without due regard to transport facilities, but it was now realised that housing and transport had to go hand in hand. Improvements were costly, but he hoped that the public would support railway developments in the London area and make them remunerative, and so encourage the Railway Executive to undertake fresh schemes for the improvement of passenger services.

Sir Cyril Hurcomb concluded by paying tribute to those responsible for the new electrification.

East Indian Railway Annual Dinner

The 46th annual dinner of the East Indian Railway Officers' Dinner Association was held at the Connaught Rooms, London, on September 21, Mr. J. A. Bell, a former General Manager, presiding. The following were present, comprising 51 members of the Association and six guests:—

Members: Messrs. S. W. Abel, H. S. Allen, H. J. Allinson, H. J. Archer, J. A. Bell, C. V. Bliss, F. S. Bond, G. W. Browne, S. J. P. Cambridge, Sir George Colvin, Messrs. D. D. Cruickshank, A. Devon, A. J. Doran, R. J. Earle, H. G. Emmerson, C. Evers, J. M. Fenton, M. J. Fryer, J. C. Gibson, A. R. Gundry, Sir Hugh Hannay, Messrs. J. H. Hardman, L. Hemmings, C. G. B. Hinckley, H. Howe, G. R. G. Huddleston, R. G. Hughe, G. H. Johans, G. T. Lemon, E. H. N. Lowther, Sir Robert Marriott, Messrs. F. G. S. Martin, E. Massingham, R. L. Meehan, E. G. Moyes, P. C. Mukerjee, A. V. Nicolle, H. W. Puttick, F. E. Robertson, J. Robertson, G. W. N. Rose, B. Severs, R. L. Tanner, G. A. R. Trimming, J. S. Tritton, O. R. Tucker, A. V. Venables, H. C. Wallace, R. M. Watson, W. J. Walters and R. B. H. Whitby.

Guests: Messrs. E. Bateson, A. Goldsack, J. C. Hight, R. R. Parker, J. V. Severs and Sir William Stanier.

Before proposing the toast of the evening, the East Indian Railway, the Chairman first expressed his thanks to the permanent committee of the Association for having done him the honour of inviting him to take the chair. In that connection, he recalled how warmly he had been received by the heads of the various departments of the railway when he had joined it, and emphasised that he had always received the utmost assistance from them and from all other E.I.R. officers.

THE E.I.R. TODAY

He then told his audience that he had just received a letter from Mr. Varma, the present General Manager, giving the latest news of the E.I.R. Like others, the railway had been going through difficult times. Following the war had come Partition (of the Indian sub-continent), and about 46 per cent. of the running and technical shed staff of the railway had opted for immediate transfer to Pakistan. Replacements had been very difficult, and posts had had to be filled by inexperienced and inadequately-disciplined personnel. There had followed a period of

strikes and threats of strikes, in fact, a regular war of nerves.

Another factor which proved a severe and continuous handicap was that, in 1947, there had been no fewer than 453 time-expired locomotives requiring replacement out of the total locomotive stock of 2,095. Mr. Bell said he felt it was only fair to his predecessors, himself, and their heads of departments concerned, to make it clear that they were in no way responsible for the position in 1947. The following was a paragraph in the Rolling Stock Programme, for 1939-40, sent up to, and discussed with, the Railway Board in 1938:—"It was stressed at the Rolling Stock Meeting with the Board last year (1937) that the minimum of 40 time-expired locomotives should be replaced each year, otherwise by about 1944 the number requiring replacement would reach impossible proportions." In addition, said Mr. Bell, he had sent up to the Board a tabulated statement showing that by 1944 there would be about 650 time-expired engines on the E.I.R. As a matter of fact, by following the example of the impudent widow, the E.I.R. had succeeded in obtaining sanction for 300 new boilers, to enable some of the time-expired engines to be put back into service just before the war.

Finally, the present General Manager expressed the belief that the corner had been turned and that the worst was now over; and the Chairman said he knew they would all join him in hoping, for the sake of the E.I.R., that that would prove to be the case.

BRITISH RAILWAYMEN'S ACCOMPLISHMENTS

Continuing, Mr. Bell said he was going to turn for a few minutes from the particular to the general and speak about the job British railwaymen had done in India in building up the system as it had been handed over to the Dominion of India in 1947. In his experience, very few people outside India had any conception of the advanced state of development of Indian railways. It had certainly been a great surprise to a director of the late L.N.E.R. visiting India in 1938-39, and to the Chairman of a financial group interested in railway development in the Colonies. Moreover, an American Commission, sent out to justify Indian de-

mands for rolling stock from America, had been greatly taken aback by brief comparisons between British and Indian railway statistics.

During the war, the Chairman said, he had had experience of railway operation in Egypt, Palestine, Syria, the Sudan, Italy, France, Belgium and Germany, and he could safely say that, all things considered, Indian railways compared favourably with the standards in those countries, and were superior to several of them. Certainly on the financial side Indian railways were second to none. Not only were working expenses covered and a return of 4 to 4½ per cent. on capital paid, but a healthy depreciation fund was built up, also, and a varying but often substantial sum was contributed annually to the Central Revenues of the Government of India. They could, he said, look back with satisfaction on what they had done in and for India."

Mr. Bell then asked his hearers to join him in drinking the toast of the E.I.R., and in wishing the old firm all prosperity and good luck in the future. He subsequently proposed the health of the guests, a toast to which Mr. Hight briefly replied by thanking, on their behalf, the E.I.R. officers for their hospitality.

Sir Hugh Hannay, Chairman of the permanent committee of the Association, emphasised the hard work of the Honorary Secretary, Mr. E. H. N. Lowther, and asked those intending to be present at future dinners to let him know early, and so lessen that work. They had been most fortunate in their past and present Secretaries. There was "Sammy" Dutton—who was not only Secretary but also "dictator"—and he was sorry that he was absent this year. Then Gundry had revived the dinner after the war and built up the numbers attending. Now Lowther was their very efficient and worthy successor, and he asked the gathering to join him in expressing their gratitude to him by drinking his health.

Mr. Lowther, replying, thanked Sir Hugh Hannay, and pointed out how greatly he had assisted him. He then reported that the following members had "joined the great majority" since the last dinner: Messrs. L. E. Clifford-Hurst, J. H. Lightowler, C. E. Dench, R. Veale, E. Rogerson, Charanjit Singh and Dr. B. W. Holmes.

Finally, he proposed the health of their chairman, Mr. Bell, thus completing the formalities of a most pleasant reunion and successful dinner.

ROAD ACCIDENTS IN JULY, 1949.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain, during the month of July last shows 415 deaths (compared with 398 in July, 1948), 4,277 seriously injured (compared with 3,223 in July, 1948), and 12,769 slightly injured (compared with 11,261).

BRITISH TRANSPORT COMMISSION.—Under circular dated September 15 the British Transport Commission offers to acquire at 9½ per cent. holdings of £1-£10 of the 3 per cent. Guaranteed stock, 1978/88. On June 30 these stockholders were informed that an offer would be made. Letters in identical terms have been despatched from each of the four former main-line register offices in respect of holdings remaining on their registers.

The Antofagasta (Chili) & Bolivia Railway Co. Ltd.

The annual general meeting of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C.2, on Tuesday, September 27. Mr. H. C. Drayton, Chairman of the company, presided.

The Chairman, in his statement circulated with the report and accounts, said that net receipts were £428,210, an increase of £81,457 over those of the previous year. After adding other income and deducting fixed charges, exchange differences and certain appropriations, the credit balance was £465,556, which it was proposed to carry forward, compared with £463,586 brought forward from 1947. Appropriations included dividends totalling 5 per cent. (less income tax) on the 5 per cent. cumulative preference stock, bringing the payment of arrears of dividend on this stock up to June 30, 1939. It was not possible to pay any higher dividend; last year they had brought into account the income on their holding of Series "B" bonds of the Bolivia Railway Company in respect of the second half of 1946, and the whole of 1947, whereas this year only the income corresponding to 1948 had been brought into account.

Increased tariffs and a greater volume of goods traffic resulted in gross receipts of £2,958,040, £599,247 higher than in 1947. Despite a fall in the number of passengers carried, higher fares resulted in receipts of £180,839, £20,849 over 1947; receipts from baggage and parcels increased by £7,144 to £55,739. Working expenses, however, increased by 26 per cent. to £517,790; increased salaries, wages, and contributions exacted by social laws, and the higher cost of fuel oil and materials represented 86 per cent. of the total increased expenditure, and local taxation also had increased.

Although the balance of the revenue account of £428,210 was £81,457 more than in the previous year, the loss of £157,271 on operating the Bolivia Railway Company's lines was £59,957 more. The Antofagasta company had to pay a rental to the Bolivia Railway Company of 40 per cent. of the gross receipts of that company's lines, but constantly rising costs made it impossible to work to a 60 per cent. operating ratio. The net difference between the loss on operating and £202,120 which they received as income on their Bolivia Railway Company Series "B" bonds was £44,849, compared to £104,806 in the previous year.

Provision of £53,299 for exchange differences had been made, as compared with £26,007 in 1947, in which year their Chilean currency floating assets and liabilities were revalued at \$125·33 Ch. to the £; it had since been necessary to revalue these items at the official Group 2 rate of \$173 Ch. In addition to the appropriation of £57,006 from the net revenue account to renewals account, £42,994 had been debited direct to working expenses. After allowing for charges less credits during the year, the balance of £1,576,901 on renewals account was £74,376 more than at the end of 1947. A sum of £20,000 had also been appropriated from the net revenue account to the renewals account of the leased lines in Bolivia, of which the working expenses were also debited direct with £13,948. Due to the enormously increased costs of railway equipment, any provision for renewals based on original costs would meet only a fraction of the actual cost of replacement, which was aggravated by currency depreciation and legally restricted tariffs.

Turning to the balance sheet, he pointed out that the apparent reductions in the currency floating assets and liabilities in Chile were due to Chilean currency depreciation. Under fixed assets, capital additions during the year of £47,536 consisted mostly of rolling stock, machinery, and buildings; £550,250 shown as current assets in Bolivia was largely in respect of outstanding freight accounts, since paid.

The Chilean Government, which had sanctioned an increase of 18 per cent. in tariffs as from July, 1948, had sanctioned a further increase of 10 per cent. as from July of this year. Nevertheless there had been constant increases in costs both in Bolivia and Chile. In Bolivia a general strike in August on all railways resulted not only in payment of the "bonus" referred to in last year's statement, but in the granting of many other concessions. These were additional to certain benefits secured in December, February and March. Although the Bolivian Government had authorised a tariff increase to compensate for this, future increases might adversely affect traffic.

In the past year they had had to bring back into service several locomotives previously laid up, and there was now no motive power reserve. As stated, they were not in a position to purchase more modern and powerful locomotives. They hoped however to take delivery in 1950 of six Garratt locomotives now on order. The demand for goods vehicles continued to be heavy, although reorganisation of wagon control had resulted in decreased turn-round time.

Traffic receipts for the Antofagasta Railway up to July showed some increase due to increased tariffs authorised to offset increased costs, but until some stability in operating costs was achieved, they could hope only that revenue would keep abreast of expenditure. The railway depended on the mining industry. Although tin was so far unaffected, the fall in the price of copper, their most important traffic in Chile, might adversely affect traffics. Nevertheless the Chile Exploration Company were to increase their plant, which would bring them large tonnages of machinery and construction materials.

He had to report with the deepest regret the deaths of Mr. H. S. Brown, for many years their Resident Engineer, Chile, who had retired last year, and of Mr. W. A. Buxton, Assistant Chief Stores Superintendent, Chile, after a long illness.

During the present year Mr. L. V. Keity Duff, General Manager in Bolivia, and Mr. W. Wells, General Manager in Chile, had visited England and discussed matters of policy. Their relations with the Chilean and Bolivian Governments continued to be cordial.

The report and accounts were adopted.

BRONZE FOUNDING FILM.—The film "Bronze Founding," which has been sponsored by the Association of Bronze & Brass Founders, was shown by the Eyre Smelting Co. Ltd. at its Tandem Works, Merton Abbey, London, on September 20, and at the Wimbledon technical school on September 21. In addition to personnel from the Eyre Smelting Co. Ltd., persons from other foundries in the London area were able to see this interesting film. At Wimbledon technical school, students were also able to see a range of castings and finished bearings produced from gun metal and phosphor bronze.

Great Northern Railway (Ireland)

Shareholders' Association Annual Meeting

Shareholders of the Great Northern Railway Company (Ireland), at the annual meeting of the Shareholders' Association on September 23, expressed the criticism that the Northern Ireland and Republic of Ireland Governments had not yet met to discuss plans for the future operation of the company. One stockholder asserted that until there were extensive dismissals of employees and curtailment of services neither Government would act.

Mr. F. Storey, who presided, said that both Governments should get together at once and consider the acquisition of the railway, of the position of which they had been well aware for some time. He emphasised that the two Governments were already co-operating on the Erne electricity scheme. The meeting passed a resolution to the effect that "this meeting is of the opinion that the Governments of the North and South should immediately confer with a view to the solution of the transport problem as it applies to both areas." One speaker suggested that instead of passing resolutions, which were described as a "disease," they should petition the High Courts and have the company wound up.

MILNE REPORT SUGGESTION

Captain J. W. Storey, Honorary Secretary, read the report of the Association. He pointed out that the Milne Report had suggested a possible solution whereby (a) the G.N.R. would continue to be responsible for the operation of road and rail services in the areas in which they were now provided; (b) ownership of the fixed assets of the company situated on either side of the border would be taken over by Coras Iompair Eireann and the Ulster Transport Authority, respectively, but the assets would continue to be used by the railway; and (c) staff resident in the 26 counties would be subject to the same rates of pay and conditions of service as employees of C.I.E. Similarly, those resident in Northern Ireland would be subject to the conditions applicable to employees of U.T.A. Captain Storey said that the proposed solution had been considered by the committee of the Shareholders' Association, and had received general approval, but a definite opinion could not be given until the terms on which shareholders were to be treated were made known.

It must be emphasised, he continued, in any negotiations which might take place, that the property was in first class order, and that considerable sums which might otherwise have been distributed in dividends had been spent keeping the railway in excellent running order and in providing reserves for the development of services. The present financial position was largely due to the considerable increase in wages, salaries and cost of materials.

The committee felt that the action taken in notifying the employees that their employment was in jeopardy due to receipts not meeting expenditure was fully justified, and should have been taken earlier to prevent inroads on reserves accumulated at the expense of the shareholders for the development of equipment and services. The possibility of services being curtailed or brought to an end had

made the public aware of the important part which was played by the railway.

Mr. F. Storey, moving the adoption of the report, said that if the finances of the company prevented not only payments of dividends, but also developments which the board had contemplated, it was surely time to cry "halt," especially as there was no reserve or any fund from which deficits could be met.

At the conclusion of the meeting, Mr. F. Storey was re-elected Chairman, and Captain J. W. Storey was re-elected Honorary Secretary, of the Shareholders' Association.

Locomotive Inspectors' Conference

The practice of holding shedmasters' conferences in British Railways, Eastern Region, introduced by Mr. L. P. Parker, Motive Power Superintendent, Eastern Region, has now been extended to conferences for locomotive inspectors, the first of which took place at St. Ronan's Training Centre, Hadley Wood, near London, between August 9 and August 11.

It will be seen from the following titles of the papers read at the various sessions that the conference was intended to cover a variety of subjects of interest to locomotive inspectors:

- "Priming," by Mr. E. H. Ker
- "Plain English," by Mr. J. A. Taylor
- "Hot Boxes," by Mr. W. G. Morris
- "The Rules about Signals," by Mr. G. Nightingale
- "Art and Science in Engine Driving," by Mr. G. A. Weeden
- "Steaming," by Mr. A. Day

The chair for each session was taken by a different member of the conference, and all the papers, except "The Rules about Signals," were given by members of the motive-power department. At the opening of the conference Mr. L. P. Parker said he was pleased to welcome all members, in particular those from other departments.

Due to past experience accumulated from the locomotive shedmasters' conferences, it was decided to include as members of this conference staff from other departments: two district inspectors from the divisional operating departments, Eastern Region, were selected, as well as the "Locomotivemen's Mutual Improvement Classes" conference secretary.

At the closing session, which was presided over by Mr. Parker, the chairman of each session gave a brief summary of the

points raised for discussion. Mr. J. S. Jones, the Assistant Motive Power Superintendent, British Railways, Eastern Region, who brought the proceedings to a close, gave a short address to the members of the conference.

Hurst, Nelson & Co. Ltd.

The annual general meeting of Hurst, Nelson & Co. Ltd. was held in Glasgow on September 22, Lt.-Colonel Arthur N. Forman, Chairman, presiding.

The Chairman said that for the sake of convenience they had altered the terminating date of the accounting period to March 31; because of this the accounts covered only 8½ months.

The reduction in trading revenue due to nationalisation of wagons, which were formerly a valuable source of income, had fallen in full measure within this period, and accounted for the diminution in trading profit, as revealed in the consolidated profit and loss account. Beyond this, making allowance, where appropriate, for the shorter accounting period, there was little need for any comment on revenue aspects.

The balance-sheets confirmed a notably sound and liquid position. Reserves and undistributed profits now amounted to £908,555, almost entirely covered by liquid assets. The cash balance of over £920,000 as at July 17, 1948, after payment of £150,000 cash distribution to Ordinary shareholders, had been largely invested in Government securities.

Although final settlement in respect of transfer of their wagons under the Transport Act, 1947, had been effected, some uncertainty concerning matters of taxation in this connection had prevented the directors from reaching definite conclusions on the disposition of realised funds resulting from such transfer. He was unable to make any announcement as to when these matters of taxation would be clarified, as action in this respect did not rest with them.

The contracts now in the order book and the prospects of the future assured full employment of their manufacturing assets and substantial contributions to exports for some years ahead. Facilities had been reconstructed and expanded during recent years in line with modern standards and were thus well placed to participate, in full measure, in the future supply of rolling stock requirements at home and abroad.

The report and accounts were adopted.



A group at the St. Ronan's Training Centre, Hadley Wood, during British Railways, Eastern Region, Locomotive Inspectors' Conference, held between August 9 and 11

Ministry of Transport Accident Report

Brandon & Wolston, London Midland Region, British Railways: April 26, 1949

Brigadier C. A. Langley, Inspecting Officer of Railways, Ministry of Transport, inquired into the fatal accident which occurred at 6.6 p.m. on April 26, 1949, on the 5.55 p.m. passenger train from Coventry to Northampton, as it was approaching Brandon & Wolston station. Flames from the fire of the engine, a 2-6-2 Class 3P tank, No. 40044, running bunker first and hauling five non-corridor coaches, blew back into the cab and seriously burned both enginemen. The fireman, enveloped in flames, jumped from the cab and sustained a fractured skull, which proved fatal, but the driver stopped the train within 75 yd. of the platform. Assistance was quickly forthcoming, and the driver was given first aid by two passengers and examined by an ambulance superintendent, to whom he said the accident was "a blow-back from the firebox." He was much more concerned about the safety of his engine and his fireman than himself and he assured a relief crew, which arrived at 6.40 p.m. that the engine was "all right." He was removed to St. Cross Hospital, where he died at 7.30 p.m. as a result of inhaling hot gases.

The line is level for two miles approaching the station from Coventry, but at the home signal changes to 1 in 666 up. A speed restriction, because of subsidence, of 25 m.p.h. applied over the first of these level miles and one, just imposed, of 15 m.p.h., between home and starting signals. The weather was fine, with variable breeze in the direction of travel.

THE COURSE OF EVENTS

The train left Coventry to time and observed the first-mentioned speed restriction, accelerating thereafter. No signalman observed anything wrong with it, nor was there any emergency brake application. A porter saw it approach more slowly than usual and a burning mass—the fireman with his clothes alight in three places—fall from the engine. The driver got down and went to the signal box for assistance; meeting the guard, he asked him to work the boiler injector.

The guard was the first to reach the engine, which has a two-handled regulator in the centre of the back-plate with blower valve handle directly below it. Both cab doors were open. There was a little coal in front of the bunker door but no signs of burning coal or ashes, which might have been expected had an explosion occurred. The fire was burning slowly, with some smoke rising, but no signs of draught. The engine was not blowing off. All boiler mountings and everything on the footplate appeared covered with soot and there were several pieces of smouldering cloth about. The guard cleaned the right-hand gauge glass, which was about a quarter full and filled the boiler from the right-hand injector. He was sure that he touched nothing else.

The relief enginemen corroborated this. They were met by the injured driver who told them the engine was all right, and found the footplate in the condition described by the guard. The blower was closed, regulator shut, and the engine in full back gear with steam brake on. Both injectors were off, the little ejector closed and the boiler full, with nearly maximum steam pressure. They were

emphatic that the blower was closed, and its handle blackened, with no sign of fingermarks.

The train was drawn into the station and proceeded at 6.45 p.m. without incident. Examination of the engine later at Rugby shed showed it to be in good working order. No tube was burst. The foreman described the deceased enginemen as two of his best. The driver, aged 51, had an excellent record of 38 years service, and the fireman had been with him since returning from the army four or five weeks previously. When called up he was fully trained with adequate experience.

The foreman did not think a misunderstanding should arise between the men regarding the blower. The fireman would be most likely the one to work it, but it must have been overlooked when the driver closed the regulator before stopping at Brandon. The relief driver told Brigadier Langley that he usually worked the blower if it was in the middle of the back-plate, as was common on most London Midland Region engines, but left it to the fireman if it was on the latter's side, as on some freight engines. The relief fireman, on the other hand, said he put the blower on himself, whether driving or firing. (He was a passed fireman.)

INSPECTING OFFICER'S CONCLUSION

Brigadier Langley was satisfied that the accident was caused by back draught and not an explosion. All the evidence and circumstances of the case supported that view, while the deceased driver would have mentioned an explosion had one occurred. No difficulty was experienced in working the engine on and then back to shed, and it can be accepted that it possessed no defect. The immediate cause of the back-draught was failure to open the blower before closing the regulator.

The well-made-up fire, open fire, door and bottom flap down, with shovel found lying across the bunker door and burns on the small of the fireman's back indicate that he had been firing before reaching the 1 in 666 gradient, and was filling his shovel when the accident occurred. The position where the engine stopped showed the regulator to have been closed earlier than usual, presumably when the driver decided to reduce for the 15 m.p.h. restriction. This was imposed only two days before, and possibly both men temporarily forgot it and were taken by surprise, although the driver received the weekly notices and had driven over the route on the previous day.

The severity of the blow-back was most unusual, due probably to the heavy accumulation of gases from the fresh coal on the fire. It would have been accentuated had the driver been running with the little ejector closed. This would be most unlikely, however, and it is much more probable that the driver turned it off after stopping.

Records show that back-draughts from the fire-hole door are usually due to failure to work the blower correctly. Opening this valve before closing the regulator is part of the routine, and it is the driver's ultimate responsibility, whatever may be the practice of different enginemen and wherever the blower may be placed on the back plate. Although

it is not thought to have any bearing on this case, it is desirable that the position of the blower should be standardised, and this matter is receiving attention.

After the accident the late driver acted most commendably; in spite of his injuries he stopped the train promptly, went to the signal box for assistance, instructed the guard about the safety of the engine and then went in search of his fireman. His first concern was for the safety of his passengers and train, and his actions were in accordance with the highest traditions of the railway service.

Staff & Labour Matters

Railway Wage Claim

The decision of the mass meeting of London railwaymen on September 19 to work-to-rule as from midnight on September 21 was not implemented on the scale threatened. The decision was in accordance with a recommendation of the London District Council of the N.U.R. in protest at the rejection by the Board of Conciliation of the N.U.R.'s application for an increase of 10s. a week and enhanced payment for all time worked after noon on Saturdays.

Some days earlier, N.U.R. headquarters had sent out a circular letter appealing to members to carry on normal working until all the issues arising out of the report of the Board of Conciliation could be discussed at the Special Delegate Conference on September 29 and 30. The suggestion by the Minister of Labour & National Service that a Board of Conciliation be established to consider wages and conditions of service of salaried and conciliation staff, as also the terms of reference of the proposed Board, was accepted by the N.U.R. Special Delegate Conference of July 28—an important consideration for the Conference of September 29 and 30.

In an attempt to dissuade its members from go-slow working in the London area as from midnight on September 21, a special appeal was issued earlier that day by Mr. J. B. Figgins, General Secretary of the N.U.R., in the following terms:—

"The National Executive of the Union this morning considered the decision of the mass meeting of London Railwaymen on Monday night and decided to call upon all members not to give effect to that decision but to continue normal working as decided by the Executive on Saturday.

"This will permit the decision upon the recommendations of the Conciliation Board to be taken by the Special Delegate Meeting called for September 29/30.

"The Executive Committee again calls upon all members loyally to support the Executive by continuing to work normally."

On the morning of September 22 it was clear that wiser counsels generally had prevailed, and main-line, suburban and underground services were operated normally. Passengers who had left home early so as to be at business at the normal time experienced no difficulty. The difficulties were more pronounced in the Southern Region; go-slow working began at midnight at Blackfriars and Southwark Goods, Bricklayers Arms, Woolwich and Plumstead Goods, Croydon Goods, and Waterloo Parcels Cartage depots, but passenger services were not interfered with. In other regions of British Railways the staff began go-slow working, but later in the day reverted to normal work, at Poplar Docks, Bromley-by-Bow Goods Depot, South Lambeth Goods Depot, and Brentford Docks.

After a meeting of the Executive Com-

mittee of the N.U.R. on the morning of September 22, Mr. Figgins stated:—"I am satisfied with the loyalty which has been displayed by the men to the Executive Committee. I am hopeful that the few remaining depots which have not followed the lead of the Executive will do so after a full explanation has been given to them by District Officials of the Union. I have instructed my officers to go to the depots where work-to-rule is being operated to arrange meetings at which they can give this explanation. We are hopeful that as a result of these efforts all the men will see the wisdom of conforming to the decision of the Executive."

After meetings of the staff, certain depots in the London area decided to work normally pending the outcome of the N.U.R. Special Delegate Meeting. These were:—Kings Cross Passenger and Goods, Euston Passenger, St. Pancras Goods, Somers Town, Bishopsgate Goods, Camden Town Goods, Broad Street Goods, and Nine Elms.

By September 23, after the appeal from N.U.R. headquarters, the go-slow movement had collapsed, and normal working was resumed at all the London depots and also at Warrington Bank Quay Goods and Warrington C.L.C. Goods, where work-to-rule had been in operation since September 9.

Many N.U.R. branches held meetings last weekend to draft recommendations for the N.U.R. Special Delegate Conference on September 29 and 30. A number of delegates were instructed to call for a review of the rates of pay of lower paid railwaymen.

At a N.U.R. meeting at Newcastle representing 14,000 members in 60 branches from Berwick to Hartlepool, it was decided by a large majority to oppose go-slow working and to instruct delegates to the Special Delegate Meeting to press for an immediate application for an increase for lower paid workers and for a standstill in the wages of higher paid staff. Carlisle Joint Branches, representing over 3,000 members, decided however to accept the recommendations of the Conciliation Board, but to urge the Delegate Conference to make a fresh application for a £1 a week increase because of the increased cost of living and the effects of devaluation.

The Liverpool Branch of the N.U.R. decided to call off go-slow action until after the Special Delegate Conference. The West District Council of the N.U.R. passed a resolution expressing dissatisfaction with the recommendations of the Conciliation Board, but agreeing to honour the N.U.R. undertaking to accept the findings of the Board. Representatives of 4,000 railwaymen at Gateshead rejected go-slow working, but delegates to the Special Delegate Conference were instructed to press for a minimum wage of £5 a week for all railwaymen.

At Dundee, where the branch had previously voted for work-to-rule and no overtime as from last weekend, conditions were reported to be normal and the resolution was not implemented.

NEW SIGNALBOX AT STAPLEFORD & SANDIACRE.—An all-brick signalbox with 115 levers has been brought into use by the London Midland Region at Stapleford & Sandiacre on the main line from Trent to Clay Cross. The new signalbox replaces a timber box of 64 levers and has been provided in connection with the mechanisation of Toton Up yard, to which it controls access at the north end.

Notes and News

Locomotives and Boilers for Pakistan.—The Government of Pakistan invites tenders for the supply of metre-gauge steam locomotives and boilers. See Official Notices on page 403.

Western Region Lamp Contract.—The Western Region of British Railways has awarded a part contract for Cosmos and Metrovick electric lamps, for the period July 1 to December 31, 1949, with Metropolitan-Vickers Electrical Co. Ltd.

National Packaging Exhibition.—Mr. G. M. Ashwell, President of the Institute of Packaging, will be in the Chair, when Sir Robert Sinclair opens the National Packaging Exhibition, at the City Hall, Deansgate, Manchester, on October 5. The exhibition, which will be open daily from 10.30 a.m. to 7 p.m., until October 15, has been organised by Provincial Exhibitions Limited in association with F. W. Bridges & Sons Ltd.

Central Line Extension to Epping.—The extension of the Central Line service from Loughton to Epping, which is fully described elsewhere in this issue, was inaugurated on September 25 when a special train left Loughton at 7.1 a.m. driven by Mr. F. G. Maxwell, Operating Manager (Railways), London Transport Executive. The signal to start was given by Mr. A. R. Dunbar, Divisional Operating Superintendent (Eastern Division), British Railways, Eastern Region. The first public trains left Epping at 7.15 and Loughton at 7.55 a.m.

Fluorescent Lighting at Underground Stations.—To effect an improvement in the lighting at the London Transport Charing Cross and Waterloo Stations, work will soon commence on the replacement of the existing system by fluorescent Daylight lamps. As the new escalators and subways at Charing Cross and the new ticket hall, escalators and subway at Waterloo, under construction in preparation for the Festival of Britain, will have fluorescent lighting, it has been decided to equip the existing sections of these stations

Memorial in Longmoor Church



Plaque in Longmoor Garrison Church in memory of members of former Southern Railway Transportation units who fell in the 1939-45 war (see last week's issue)

similarly, both to maintain uniformity of appearance and to give the desired improvement in the standard of lighting. At Charing Cross, the ticket hall, subways, escalators and tube platforms, as well as the District Line platforms, will be fitted with the new lighting, and, at Waterloo, the platforms, subways, escalators and ticket hall, except for the York Road entrance. The work of replacing this lighting equipment will be carried out in sections at each station and each section will be brought into use as completed. London Transport lighting engineers will carry out the work, which it is hoped will be completed in time for the Festival of Britain.

Retail Prices Index.—At August 16 last the official index figure, which measures changes in the average level of retail prices compared with the level at the base date, June 17, 1947 (taken as 100), was 111, the same as at July 12.

Railway Benevolent Institution.—The board of the Railway Benevolent Institution, at its meeting on September 21, granted annuities to 10 widows and 16 members amounting to £500 11s. from the general funds of the Institution; five funeral gratuities on account of deceased annuitants amounting to £48; and one gratuity to an officer's child of £45. It also sanctioned grants from the special benevolent fund amounting to £619 to 45 applicants. Grants made from the casualty fund during August amounted to £535 4s. 6d.

B.T.C. Police National First Aid Competition.—The South Western Area eliminating rounds in the British Transport Commission Police National First Aid Competition were held in London on September 21, when teams from Portsmouth, Dover, Brighton, Exeter, Cardiff General and Cardiff Docks competed. The Portsmouth team won and it will represent the area in the finals, which are being held at Euston on October 11. The second and third prize winners were the Dover and Brighton teams. The adjudicators were Dr. M. M. Scott and Dr. E. J. Selby, of London. Mr. A. Lane, Chief of Police, South Western Area, British Railways, presided over the subsequent proceedings, and the prizes were presented to the three winning teams by Mr. R. Burgoyne, Regional Staff Officer, Western Region, and Chairman, Western Region Ambulance Committee.

L.M.R. Mobile Testing Plant.—A six-day series of tests has been successfully completed recently by the London Midland Region with Class "5" locomotive No. 44764 and the new No. 3 dynamometer car and the mobile testing units. The route used was between Derby and Willesden and the schedule was so arranged that the engine was worked at constant speeds of 10, 20, 30, 40, 50 and 60 m.p.h. for periods of from half to one hr. For each test, different cut-offs were used, and the object was to produce characteristic curves of indicated and drawbar performance, as well as the upper limits of capacity at each speed. The indicating was effected by means of the Farnborough indicator in the dynamometer car. Coal consumption was assessed using the special tender and weighed bags of coal, and care was taken to equalise the thickness of fire on the grate at beginning and end of the tests. Water was measured by means of a water meter. During this series of tests with the mobile

OFFICIAL NOTICES

Crown Agents for the Colonies

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, or a unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

FERODO LIMITED require Mechanical Plastics Technical Representative, London, Home Counties. State age, qualifications, salary.—Apply Manager, London North or South Depots.

RAILWAY STORE METHODS. By W. H. Jarvis. Great Western Railway. The necessity for training officers—organisation of stores department—Stores accounts. Cloth, 7½ in. by 5 in., 116 pp. With diagrams. 4s. By post 4s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE EVOLUTION OF RAILWAYS. Second edition, revised and enlarged. By Charles E. Lee. Traces the germ of railways back to Babylonian times. Cloth, 8½ in. by 5½ in., 72 pp. Illustrated. 6s. By post 6s. 4d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.E.s. during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. Price 1s. Post free 1s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linesmen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth. 8s. By post 8s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

plant, opportunity was taken to gain experience of this method and to perfect the technique. Preliminary assessment of the results is very promising, and it is stated that this method of testing locomotives will prove successful.

Green Line Coach Fares.—Passengers travelling by London Transport Green Line coach from London, are now allowed to return, if they desire, by a different Green Line coach route. The new scheme, which came into operation on September 28, provides that cheap day return tickets issued on Green Line coaches from London will be available for return to London, without extra payment, on any other route from a point where the cheap day return fare is the same, or less, than that paid for the ticket held. Where the fare is more, the difference between the respective single fares is payable. This concession is additional to the changes made three months ago when cheap coach fares were extended to every day of the week, with the alternative of making the return journey to London by rail after 4 p.m. on Saturdays, Sundays, and Bank Holidays.

Threat to Transport in Eire.—The 450 road-freight transport employees of Coras Iompair Eireann who have been on strike for six weeks have called on the Irish Transport & General Workers' Union to extend the strike to all freight centres in the country. The railway workers were meeting to consider the position and grave fears were expressed in Dublin last night that the country's transport may be paralysed. The strike which started unofficially as a result of suspension of two lorries alleged to have disobeyed an order, later became official and the matters in dispute were referred to the Labour Court

ASSISTANT ENGINEERS (CIVIL) required for the London Office. Salary scale £475 a year rising to £750 a year. The £475 minimum is linked to entry age of 25 with the addition of £25 for each year above that age up to £600 and subtraction of £25 for each year below 25. Extra diet allowance of 8 per cent. of annual salary also payable at present. Engagement will be on an unestablished terms with a prospect, after satisfactory service, of appointment to the established and pensionable staff in due course, vacancies permitting. Qualifications. Candidates must have qualified as members of the Institution of Civil Engineers or of the Royal Institution of Chartered Surveyors, or have passed the qualifying examination of either of these Institutions, hold an exempting degree or have obtained the Testamur of the Institution of Municipal Engineers. They must have had experience in the office of a Civil Engineer, the Civil Engineering Department of a railway, a firm of Structural Engineers, the Civil Engineering Branch of a municipality or a Contractor. (A) Draughtsmen capable of preparing designs for bridges and buildings in steel, with knowledge of reinforced concrete, some experience in the field or on works, desirable, or (B) special knowledge of water supply and drainage schemes with experience in the use of contractor's plant, or (C) special knowledge of the purchase of building material and building equipment, including water and drainage installations and fittings. Duties. (A) Designs for steel and reinforced concrete structures and general Civil Engineering work. (B) Examining Civil Engineering projects and material requirements. Preparation of specifications for materials, equipment and plant; adjudicating tenders for their supply; conducting correspondence of a technical nature. (C) Similar to (B) but concerned with the purchase of building materials and fittings; preparation of specifications and examinations of tenders. Candidates with special knowledge of (A) are required in the Design Branch, and those with (B) and (C) in the Supply Branch. Officers may be required to undertake short tours in the Colonies on field or survey work. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/2493/3D on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

which has now recommended that work should be resumed. The workers have refused to return unless the two men are reinstated with them. The Labour Court described the strike as "undisciplined and unjustified."

Portable Stands for Poster Boards.—Light metal-tube stands for poster boards have been introduced on the Southern Region, British Railways, with a view eventually to abolishing loose notice



Southern Region poster board stand (see paragraph above)

THE Government of Pakistan invites tenders for the supply of:—

Metre Gauge Steam Locomotives and Boilers:—Locomotives 4-6-2 "YB" Class, Nos. 32. Locomotives 2-8-2 "YD" Class, Nos. 12. Boilers for "YB" Class, Nos. 12; Boilers for "YD" Class, Nos. 11. Forms of tender may be obtained from the Office of the High Commissioner for Pakistan, Supply and Stores Department, 39/40, Lowndes Square, S.W.1, upon payment of £2 per set of forms (not returnable). For the convenience of firms who are unable to view the exhibited drawings in London a small selection of arrangement drawings will be issued for an additional payment of £3 per set (not returnable). The forms of tender are to be submitted direct to: THE DIRECTOR GENERAL, RAILWAYS, MINISTRY OF COMMUNICATIONS (RAILWAY DIVISION), GOVERNMENT OF PAKISTAN, KARACHI, in time to reach him not later than noon on December 12, 1949.

STATION DESIGN. A striking example of modern British practice at the important wayside station of Luton. Reprinted from *The Railway Gazette*, July 7, 1944. Price 1s. Post free 1s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE FIRST PASSENGER RAILWAY. By Charles E. Lee. A history of the Swansea & Mumbles Railway, which extends over 136 years. Cloth, 8½ in. by 5½ in., 91 pp. Illustrated. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE RAILWAY HANDBOOK provides the railway student with a collection of useful statistics and information relating to the railways of Great Britain and Ireland. In addition, in matters of international interest, such as speed and electrification progress, the book extends its scope to cover the whole world in order to present a complete picture of these increasingly-important developments. 120 pp. Dy. 8vo. Paper covers. Price 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

boards. The latter are often necessary for announcements of urgency or of particular interest, such as of traffic diversions or special excursions, but they are unsightly, easily blown over, or unduly heavy, and can be dangerous when in the way of passengers. The new stands are double-sided, and will take two double-royal size boards; they are mobile, can stand by themselves, and have rounded corners. A prototype recently was tried out in the circulating area at Waterloo, where it was inspected by Sir Eustace Missenden, Chairman of the Railway Executive, Mr. John Elliot, Chief Regional Officer, and departmental officers of the Southern Region. Some 500 stands have been ordered as a result of the success of the prototype.

International Wagon Union Conference.—Delegates of standard-gauge railways in 16 European countries attended a conference which the International Wagon Union (Union Internationale des Wagons) held at Naples between September 5 and 10. Both at the preliminary commission meeting and at the extraordinary plenary session, presided over by the chief operating superintendent of the Swiss Federal Railways, problems relating to the exchange of wagons in international traffic were discussed. It has been decided to modify the provisions governing the reciprocal use of wagons in international traffic.

Road Haulage Association Membership.—At a meeting of the Road Haulage Association, Executive Committee, on September 21, it was reported that, in spite of the loss of membership as a result of acquisitions by the Road Haulage Executive, the total number of members at the end of July, this year, was slightly higher than the total at the end

of 1948. The Committee felt that the present position, so much more satisfactory than had been feared, is largely due to the tremendous amount of work done in the areas; in particular, area offices were kept busy helping members with applications for original permits.

Macrome Limited Manchester Office.—The Manchester office of Macrome Limited is being removed to Transport House, 1, The Crescent, Salford, 5, Lancashire, as from October 1. The new telephone number will be Pendleton 3656. Mr. P. W. D. Winkley continues as Manchester Branch Manager.

Automatic Telephone Issue.—The Automatic Telephone & Electric Co. Ltd. announces that it will shortly be making an issue to ordinary and deferred stockholders of 315,621 new ordinary shares, being the unissued balance of its share capital. The issue will take the form of a "rights" issue of three new ordinary shares at 50s. per share for each £10 of ordinary or deferred stock held on September 9, 1949. Permission has been received from the Capital Issues Committee. The issue has been underwritten by Telephone & General Trust Limited, and sub-underwriting is now taking place.

Forthcoming Meetings

September 30 (Fri).—Institution of Railway Signal Engineers, at the London Transport Signal School, Earls Court Station, at 6.15 p.m. "Mechanical Signalling," by Mr. D. L. Champion.

October 1 (Sat).—British Railways, Southern Region, Lecture & Debating Society. Visit to National Physical Laboratory, Teddington.

October 3 (Mon).—Society of Engineers, in the apartments of the Geological Society, Burlington House, London, W., at 5.30 p.m. "Scientists v. Engineers," by Mr. G. Constantinesco.

October 6 (Thu).—British Railways, Western Region, London Lecture & Debating Society, in the Clerks' Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. "Transport as an Integrated Public Service," by Sir Cyril Hurcomb, Chairman, British Transport Commission.

October 6 (Thu).—Institution of Mechanical Engineers, Graduates' Section, Storey's Gate, St. James's Park, London, S.W.1, at 6.30 p.m. "The Functions of the Institution and its Value to the Profession," by Mr. B. G. Robbins.

October 6 (Thu).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. Presidential address by Professor E. B. Moullin.

October 6 (Thu) to 16 (Sun).—International Container Exhibition, in Salon de l'Emballage, Exhibition Centre, Porte de Versailles, Paris.

October 7 (Fri).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.30 p.m. "Maintenance Problems Associated with L.M.S.R. Standard Designs," by Mr. R. F. Harvey, Motive Power Superintendent, Scottish Region.

October 8 (Sat).—Permanent Way Institution, Manchester & Liverpool Section. Ten minute lectures by members of the section.

October 8 (Sat).—British Railways, Southern Region, Lecture & Debating Society. Visit to Southampton Docks.

Railway Stock Market

The outburst of speculative activity in markets that followed first news of devaluation of the £ has given way to a reaction which extended even to gold mining shares, although they retained the greater part of recent gains. The fact that many other European currencies have now been devalued in relation to the dollar means greatly increased competition for export business to America. Markets are attempting to look ahead and it is felt that it is difficult to assess the outlook for commodity prices. Unless they decline, it is feared, it may be difficult for industry to cut production costs materially. Devaluation of currencies, it is being assumed, means that controls and Government bulk buying will have to be modified very considerably during the next twelve months, whatever the result of the general election, and that at home many companies will face growing competition and reduced profit margins. Devaluation has not led to any further reaction in British Funds, which, in fact, regained part of the moderate decline that followed first news of devaluation. At the time of writing, markets are awaiting the Parliamentary debate on devaluation, which it is thought may throw some fresh light on the Government's plans, and whether the economy move means any big reduction in capital projects. As was to be expected, nationalisation stocks have continued to move very closely with other long-dated British Funds. War Loan, which it was thought in some quarters might go to 90 in the event of devaluation of the £, is 95% at the time of writing, and 3 per cent. Transport (1978-88) at 90%.

United of Havana stocks were again the feature in foreign rails; and awaiting the further statement promised concerning the negotiations already announced, the 1906 debentures have advanced afresh to 27%. Havana Terminal debentures also advanced further to 95. In other directions, Antofagasta preference stock attracted buyers and moved up to 46, although the ordinary at 9 failed to hold best levels: Among Manila Railway issues the "A" debentures were 91, the

preference shares 8s. 6d., while the ordinary shares attracted some speculative attention around 1s. 9d. Leopoldina stocks have been quiet with the ordinary and preference at 9½ and 30½ respectively; the 4 per cent. debentures were 93½ and the 6½ per cent. debentures 136. Leopoldina Terminal debentures were 110 and the ordinary units 3s. 6d. Great Western of Brazil shares, however, rallied to 143s. 9d., but Brazil Railway gold bonds eased to 41. Elsewhere, Mexican Railway 6 per cent. debentures were 42½ and National Railway of Mexico 4½ per cent. bonds strengthened to 18.

Road Transport shares have been easier for choice, but remained firmly held on the belief that dividends are likely to be maintained, and that there are unlikely to be any further take-over moves by British Transport before the General Election. B.E.T. deferred stock encountered a good deal of profit-taking and fell back to £1.560.

Iron and steel shares have come back, sentiment being affected by reports of some reduction in demand for steel from industries engaged in the home market. Moreover, talk of the possibility of a general election before the end of the year also affected sentiment. Dorman Long eased to 29s. 6d., Stewarts and Lloyds to 53s., Colvilles to 33s., and Hadfields to 25s. 6d., while despite expectations that the forthcoming results will create a good impression, United Steel at 25s. 9d. were also lower. Neepsend eased to 42s. on the chairman's statement that the steel trade generally is experiencing a distinct recession in orders for steel and that it will be fortunate if the company can maintain results in the current year. Elsewhere, Charles Roberts have been firm at £7 on the bonus news, but generally shares of locomotive building and engineering companies were unable to move against the easier trend of markets. Beyer, Peacock were 20s. 3d., North British Locomotive eased to 19s. 9d., Vulcan Foundry were 20s. Wagon Repairs shares have been firm at 17s. 3d., while Gloucester Wagon further strengthened to 50s. in anticipation of the results. Elsewhere, T. W. Ward lost a few pence at 55s. 9d.

Traffic Table of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffics for week			No. of week	Aggregate traffics to date		
			Total this year	Inc. or dec. compared with 1947/48			Total	1948/49	
South & Central America									
Antofagasta...	811	18.9.49	59,850	—	460	37	2,456,840	+ 443,410	
Costa Rica...	281	July, 1949	35,287	—	6,345	4	35,287	— 6,345	
Dorada...	70	July, 1949	29,403	—	4,063	30	200,008	+ 24,342	
G.W. of Brazil...	1,083	21.5.49	19,200	—	10,600	20	755,800	+ 1,200	
Inter. Ctl. Amer....	794	July, 1949	988,728	—	\$119,300	30	87,577,801	+ 8594,919	
La Guaira...	22	Aug., 1949	810,766	+	811,830	35	885,223	+ 821,889	
Leopoldina...	1,902	28.5.49	43,288	+	3,864	21	965,094	+ 155,382	
Nitrate...	382	15.9.49	19,046	—	3,250	37	321,595	+ 103,783	
Paraguay Cent....	274	16.9.49	152,195	+	65,700	11	61,569,879	+ 443,340	
Peru Corp....	1,059	Aug., 1949	246,670	+	74,521	9	473,214	+ 122,033	
Salvador...	100	May, 1949	94,000	—	9,000	48	c. 884,000	+ c. 6,600	
Taltal...	154	Aug., 1949	9,335	+	3,840	9	19,995	+ 4,490	
United of Havana...	1,301	11.6.49	8231,311	+	814,746	49	813,733,928	+ 84,659,951	
Canada									
Canadian National...	23,473	July, 1949	10,351,250	—	99,000	30	69,544,750	+ 1,978,500	
Canadian Pacific...	17,037	July, 1949	7,312,750	—	141,500	30	51,121,750	+ 3,460,000	
Various									
Barsi Light...	202	Aug., 1949	21,465	+	735	21	155,467	+ 20,730	
Bolra...	204	Feb., 1949	104,917	—	6,180	22	589,461	+ 9,141	
Egyptian Delta...	607	20.7.49	15,912	—	298	16	200,006	+ 5,374	
Gold Coast...	536	July, 1949	227,818	—	27,301	18	933,447	+ 72,357	
Mid. of W. Australia...	277	July, 1949	20,862	—	3,125	4	20,862	+ 3,125	
Nigeria...	1,900	June, 1949	436,929	—	33,791	12	1,282,367	+ 9,925	
South Africa...	13,347	27.8.49	1,433,548	—	74,461	34	31,447,104	+ 3,372,964	
Victoria...	4,744	May, 1949	1,513,772	+	65,626	48	—	—	

* Receipts are calculated @ 1s. 6d. to the rupee.